

# A HUNDRED NEW MOTHS OF THE FAMILY NOCTUIDÆ.

By JOHN B. SMITH, Sc. D.,

*Rutgers College, New Brunswick, New Jersey.*

Among the specimens sent me by correspondents for determination from time to time there is always a little residue that can not be certainly named. The material is for some reason or other not sufficient, or not satisfactory enough to make it safe to say that a new species is at hand, and the specimens are placed with their nearest allies, awaiting mates. The mere description of species is not to me an agreeable task, and so, gradually, specimens have accumulated until it seems necessary to put them into their proper places to facilitate future recognition. In the descriptions presented herewith the source of the specimens is acknowledged in almost every instance. Where it is not done, it is because accurate data no longer exist. With few exceptions, the types of the species are now or will be deposited in the U. S. National Museum. The exceptions are principally of specimens belonging to other institutions, or where I could not dispose of the specimens according to my own inclinations. There are a few notes on other species; but the paper, as a whole, is intended to be descriptive.

## LIST OF SPECIES DESCRIBED.

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|------------------------------------|---------------------------------------|
| 1. <i>Arsilonche colorada.</i>     | 19. <i>Carneades compressipennis.</i> |
| 2. <i>Chytonix semifascia.</i>     | 20. <i>Carneades falerina.</i>        |
| 3. <i>Copibryophila angelica.</i>  | 21. <i>Carneades vallus.</i>          |
| 4. <i>Setagrotis quebecensis.</i>  | 22. <i>Carneades sessile.</i>         |
| 5. <i>Setagrotis radiatus.</i>     | 23. <i>Carneades relaxus.</i>         |
| 6. <i>Carneades pugionis.</i>      | 24. <i>Carneades luteositus.</i>      |
| 7. <i>Carneades nevada.</i>        | 25. <i>Carneades tocoyæ.</i>          |
| 8. <i>Carneades contagionis.</i>   | 26. <i>Carneades incubita.</i>        |
| 9. <i>Carneades loya.</i>          | 27. <i>Carneades terrenus.</i>        |
| 10. <i>Carneades flaviscapula.</i> | 28. <i>Carneades territorialis.</i>   |
| 11. <i>Carneades excogita.</i>     | 29. <i>Carneades fulda.</i>           |
| 12. <i>Carneades exculta.</i>      | 30. <i>Carneades itodes.</i>          |
| 13. <i>Carneades nævulus.</i>      | 31. <i>Carneades lagganæ.</i>         |
| 14. <i>Carneades megastigma.</i>   | 32. <i>Carneades ontario.</i>         |
| 15. <i>Carneades stigmatalis.</i>  | 33. <i>Carneades testula.</i>         |
| 16. <i>Carneades termessus.</i>    | 34. <i>Carneades difformis.</i>       |
| 17. <i>Carneades enteridis.</i>    | 35. <i>Carneades dakota.</i>          |
| 18. <i>Carneades atropulverea.</i> | 36. <i>Carneades holoberba.</i>       |

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|-------------------------------------|-------------------------------------|
| 37. <i>Carneades kerrvillei</i> .   | 69. <i>Hadena tela</i> .            |
| 38. <i>Carneades ternarius</i> .    | 70. <i>Polia extincta</i> .         |
| 39. <i>Carneades noctuiformis</i> . | 71. <i>Polia acera</i> .            |
| 40. <i>Carneades intrusa</i> .      | 72. <i>Polia dispar</i> .           |
| 41. <i>Carneades neotelis</i> .     | 73. <i>Polia ochracea</i> .         |
| 42. <i>Carneades atrofusca</i> .    | 74. <i>Perigea lucetta</i> .        |
| 43. <i>Carneades objugata</i> .     | 75. <i>Perigea cervina</i> .        |
| 44. <i>Carneades cariosus</i> .     | 76. <i>Perigea texana</i> .         |
| 45. <i>Carneades malis</i> .        | 77. <i>Perigea consors</i> .        |
| 46. <i>Carneades pindar</i> .       | 78. <i>Caradrina leucorena</i> .    |
| 47. <i>Carneades henrietta</i> .    | 79. <i>Homohadena candida</i> .     |
| 48. <i>Carneades ranidicus</i> .    | 80. <i>Oncocnemis ciliata</i> .     |
| 49. <i>Carneades fœminalis</i> .    | 81. <i>Trichopolia serrata</i> .    |
| 50. <i>Carneades nordica</i> .      | 82. <i>Leucania velutina</i> .      |
| 51. <i>Carneades factoris</i> .     | 83. <i>Himella quadristigma</i> .   |
| 52. <i>Carneades cæsius</i> .       | 84. <i>Selicanis cinereola</i> .    |
| 53. <i>Carneades acutifrons</i> .   | 85. <i>Anepischetos bipartita</i> . |
| 54. <i>Carneades selenis</i> .      | 86. <i>Diallagma lutea</i> .        |
| 55. <i>Carneades laminis</i> .      | 87. <i>Heliodes angelica</i> .      |
| 56. <i>Anytus atristrigatus</i> .   | 88. <i>Heliodes restrictalis</i> .  |
| 57. <i>Mamestra senatoria</i> .     | 89. <i>Narthecophora pulvereæ</i> . |
| 58. <i>Mamestra rainierii</i> .     | 90. <i>Palada scarletina</i> .      |
| 59. <i>Mamestra bolteri</i> .       | 91. <i>Schinia reniformis</i> .     |
| 60. <i>Mamestra yakima</i> .        | 92. <i>Schinia oculata</i> .        |
| 61. <i>Mamestra dilatata</i> .      | 93. <i>Schinia ciliata</i> .        |
| 62. <i>Mamestra florida</i> .       | 94. <i>Tripudia balteata</i> .      |
| 63. <i>Mamestra roseosuffusa</i> .  | 95. <i>Tripudia luxuriosa</i> .     |
| 64. <i>Mamestra griseata</i> .      | 96. <i>Parora texana</i> .          |
| 65. <i>Hadena tapeta</i> .          | 97. <i>Synedoida subtermina</i> .   |
| 66. <i>Hadena luteocinerea</i> .    | 98. <i>Antiblemma minorata</i> .    |
| 67. <i>Hadena mustelina</i> .       | 99. <i>Antiblemma fasciata</i> .    |
| 68. <i>Hadena jocasta</i> .         | 100. <i>Bomolocha vega</i> .        |

#### 1. ARSILONCHE COLORADA, new species.

Ground color a rather pale reddish luteous, somewhat sparsely powdered with black scales. On the thorax these scales tend to form a submarginal line. On the primaries they form a very obscure little dot at the lower angle of the cell and vague streaks in the interspaces, the veins being narrowly white marked. The indication is that the streaks in the interspaces of the median and submedian series may become well marked, but in the two examples before me there are no contrasts. Secondaries more whitish, a vague marginal shading, else immaculate. Beneath somewhat paler, disk of primaries somewhat smoky, else immaculate.

Expanse, 31 to 33 mm. = 1.24 to 1.32 inches.

*Habitat*.—Glenwood Springs, Colorado; September, Dr. Barnes.

Two females, who have for some years been awaiting a mate. The species is now described because it is not easy to mistake it, and it differs obviously from our eastern form in the smaller size and more dull, reddish luteous coloring.

Incidentally, it may be said that it is probable that Mr. Grote's name

*henrici* may have to be reinstated for the eastern form usually named *albovenosa*. It seems that there is a small, though constant, difference in the male sexual parts, which is not accompanied by any noticeable superficial differences and seems not to be accompanied by any larval differences obvious to Dr. Dyar.

2. *CHYTONIX SEMIFASCIA*, new species.

Ground color a somewhat smoky brown, variously powdered. Head without obvious markings, collar with a black tip, disk of the thorax pure white, in strong contrast with the rest of the markings. Edge of the patagia blackish; the scales of the posterior tuft brown tipped. Primaries with the upper half of the wings smoky brown, the lower half blackish brown, the shades merging gradually. The markings are all obscure and are traceable with difficulty. The basal line is marked on the costa only and never distinctly. The transverse anterior line is geminate, but the outer line only is obvious. In course it is usually oblique, with the usual outcurve below the median vein. Transverse posterior line geminate, both parts of it almost equally indistinct, the inner perhaps a little the better marked. The defining lines are very even, but the line as a whole is almost rectangularly bent over the cell and then incurved below. The subterminal line is scarcely marked above the middle except by a blackish dash near the apex. Below the middle it is traceable as a gray or whitish shading through the dusky part of the wing. There is a smoky terminal line, beyond which there is a pale line at the base of the fringes, which are interlined with blackish and cut with brown on the veins. The ordinary spots are vaguely indicated, outlined by very slightly darker brown shadings. There is a distinct black basal dash, which reaches the transverse anterior line, and beyond it is the small, loop-like claviform, which is defined in a pure white patch which fills the median space between the median lines and extends upward to the median vein. Through this white patch some specimens show the remnant of a median shade. Beyond the transverse posterior line a blackish shade forms the continuation of the basal line and reaches the subterminal line. Above this there is a little black sagittate mark. Toward the apex there is a brown shading which is broad on the margin and narrows toward the subterminal line. Secondaries yellowish white, a little silky in appearance, with a blackish line at the base of the fringes as well as a vague small discal lunule. Beneath powdery, yellowish white, both wings with a discal lunule.

Expanse, 25 to 29 mm. = 1 to 1.15 inches.

*Habitat*.—Glenwood Springs, Colorado, in July; Garfield County, Colorado, 6,000 feet.

*Type*.—Cat. No. 4147, U.S.N.M.

This pretty little species has been taken by Mr. Bruce and also by Dr. Barnes; both sexes being before me. It is a sharply marked form,

easily distinguished by the white thoracic disk and the prominent white spots on the inner margin, filling the median space at that point. It forms almost a half band of white, but does not quite reach the middle of the wing. When the specimen is spread the three white spots centering in the thorax give the creature a very characteristic appearance. Perhaps the insect would be a little better referred to *Bryophila*; but it is nearer in general appearance to the species of *Chytonix*, while not so broad winged.

### COPIBRYOPHILA, new genus.

Eyes naked, large, hemispherical. Head moderate in size, distinct, not at all retracted, front conical and produced into a flat, wedge-shaped process which terminates in a broad, chisel-like tip. Vestiture scaly, forming no obvious tuftings. Palpi slender, cylindrical, reaching to or projecting a little beyond the frontal process. Antennæ simple in both sexes. Thorax rather short, subglobular, vestiture scaly, forming no obvious tufts, though there is a posterior bunching; patagia evident, though not uplifted. Abdomen reaching to or a little exceeding the anal angle of secondaries; slender, smoothly scaled. Legs well developed, tibiæ not spinose, the anterior not armed at tip, spurs of the middle and posterior tibiæ long and prominent. Vestiture of under side scaly. Wings large; primaries long and proportionately somewhat narrow, the venation apparently normal; secondaries large and broad, veins 3 and 4, separating unusually close to the tip, vein 5 scarcely even traceable.

This is a curious genus for the Bryophilid series to which I feel compelled to refer it. Its narrow primaries and ample secondaries remind one of *Hadenella*, while the conic, armed front suggests the *Acontiid* series. The smooth scaly vestiture and the almost complete loss of vein 5 of the secondaries are considered Bryophilid, and as determining the location of the genus.

### 3. COPIBRYOPHILA ANGELICA, new species.

Ground color a smooth glistening gray brown, more or less mingled with whitish scales. Head and thorax without obvious markings. Primaries with all the markings fairly well defined. The median space darker than the rest of the wing, so that it seems a little contrasting. Basal line geminate, black marked on the costa only, within it the base brown. From that point to the transverse anterior line the basal space becomes paler and whitish at the transverse anterior line. This latter line is geminate, the outer portion blackish, oblique, rather feebly sinuate, the inner line indicated by a few brown scales. Transverse posterior line geminate, not very well defined, irregular over the cell, where it is well curved outwardly, incurved beneath that point and a little better marked by the greater contrast between the median and subterminal spaces. Subterminal line irregular, whitish, without defi-

nite margins, variably emphasized by preceding and following dusky shades. The terminal space is almost all dusky. The smoky shades in the subterminal spaces are broken and become lost toward the base of the wing. There is a series of blackish terminal dots in the interspaces. The fringes are a little mottled with gray. The median shade line is distinct on the costa, darkens the space between the ordinary spots to almost blackish and becomes lost below that point. The claviform is of moderate size, outlined by black scales and filled with blackish. Orbicular round, rather small, not very well defined; its outline formed by white scales. Reniform kidney-shaped, of moderate size, outlined and partly followed by white scales, center with a dusky lunule which varies in size. Beyond the reniform the median space is paler and of the same shade as most of the subterminal space. Secondaries even, smoky, fuscous a little glistening. Beneath smoky, more or less powdery, particularly on the secondaries on which there is a more or less distinct extra median line and a discal spot. In some cases similar spots are found on the primaries as well.

Expanse, 20 to 23 mm. = 0.80 to 0.90 inches.

*Habitat*.—Los Angeles, California, in October.

Seven examples collected by Mr. Coquillett are under examination. There is not much difference in the specimens, except that some may be a little more contrasting than others. In some cases the median space is quite sharply defined and evenly brown, while in other cases the smoky powdering extends into the paler parts of the wing and lessens the contrast perceptibly.

*Type*.—Cat. No. 4813, U.S.N.M.

#### 4. SETAGROTIS QUEBECENSIS, new species.

Ground color pale, dirty, fuscous gray, powdery. Head and thorax concolorous, vestiture mixed scales and hair, tuftings not evident, patagia not marked. Primaries with the markings so obscure as to be traceable only with some difficulty, the lines only a little darker than ground. Basal line marked only on costa and below median vein. Transverse anterior line almost upright, single, a little outcurved in the interspaces. Transverse posterior line single, crenulate, the venular points long; moderately curved over the cell, distinctly drawn in below. Subterminal line marked by a white powdering which is fairly well limited inwardly but extends irregularly into the terminal space. A very faint trace of a median shade which darkens the outer portion of the median space a mere trifle. Orbicular moderate, oval, decumbent, a trifle paler than the ground and not otherwise defined. Reniform large, kidney-shaped, a trifle darker in shade, edged with a few gray scales. Secondaries smoky, paler, with a faint yellowish tint at base, fringes white. Beneath gray, powdery, primaries darker with a somewhat obscure discal spot and outer line; secondaries paler, with line and spot both prominent.

Expanse, 33 mm. = 1.32 inches.

*Habitat*.—Quebec, Canada.

A single female, very like *Carneades dissona* in superficial appearance, and mistaken for it when first received. The generic reference in the absence of a male is not certain; but it is not likely that the discovery of that sex will necessitate a change.

5. SETAGROTIS RADIATUS, new species.

Ground color smoky gray, marked and irrorate with white, smoky brown and black. Head inferiorly yellowish, interantennal tuft also pale inferiorly. Palpi dusky at the sides. Collar inferiorly luteous, tipped with white and black scales. Thoracic tuftings well marked, tipped with white. Patagia white edged and with a black submarginal line. Primaries with the median lines obsolete, the subterminal line indicated by the darker terminal space and by a series of interspaceal black spots which show it to be very irregular. The veins are dusky, margined on each side by white scales, and the interspaces are dusky, the cell being darkest. There is a slender black basal streak which reaches nearly to the middle of the wing. The median vein is most prominently white marked and after this 3, 4, 6 and 7, which strongly indent the terminal space. The orbicular is obsolete. The reniform is a small, white lunule at the end of the cell. Secondaries white, with a smoky terminal line. Beneath white, powdery, else immaculate, the secondaries a little darker.

Expanse, 35 to 36 mm. = 1.40 to 1.44 inches.

*Habitat*.—Nevada.

Two males, very much alike, from Mrs. F. O. Herring, in only fair condition. The species is allied to *vernilis* and *infimatis* in type of maculation, but is not in the least like them in detail. It has so close a habitual resemblance to *Carneades nevada*, however, that I had associated the two until a critical examination was made preparatory to description.

*Type*.—Cat. No. 4787, U.S.N.M.

CARNEADES Grote.

In my Revision of the Agrotids<sup>1</sup> I recognized 108 species as referable to *Carneades*. Three years later, after having compared the British Museum collections, I catalogued<sup>2</sup> 109 names under that heading. Since that time between fifteen and twenty new forms have been described, chiefly by myself, making about 125 nominal species of *Carneades*. The genus is one of the most difficult and unsatisfactory in the Noctuidæ because of the extent of the variation in certain species, and of the tendency to develop local types. In other words, species are forming

<sup>1</sup> Bulletin No. 38, U. S. Nat. Mus., 1890.

<sup>2</sup> Bulletin No. 44, U. S. Nat. Mus., 1893.

in a genus which seems peculiarly well adapted to the present conditions, and therefore dominant. Superficial differences are small at best, and, with only a small number of examples at hand, it is often simply impossible to say whether we have a mere variation or a distinct type.

Gradually my collection has become filled with doubtful forms, each lot received yielding some specimen a little unlike any other in my possession. Of recent years Prof. C. V. Piper, of Pullman, Washington, has sent me long series of the common types in his region; Dr. William Barnes, of Decatur, Illinois, has sent me series taken at Glenwood Springs, Colorado; Mr. A. W. Hanham, of Winnipeg, Manitoba, has sent me material from that section, and Mr. F. H. Wolley Dod has sent me many examples from Calgary. Other collectors have contributed to a less extent, and I have rearranged the species, recognizing no less than 50 as worthy of new names. This brings the number of known forms to 175, and the end is not yet. I have yet more than a dozen uniques, different from each other and apparently from any of the old or newly described species; but because they are defective or are females, I have not felt justified in giving them names at present.

#### 6. CARNEADES PUGIONIS, new species.

Ground color luteous, shaded with yellow and smoky fuscous. Head smoky, palpi yellow in front, and sometimes the head immediately behind them is of the same tint. Collar bright yellow at base, smoky fuscous above, the two shades divided by a narrow black line. Thorax squared, patagia relieved, margined with gray or yellowish, submargin blackish, disc gray, tuftings evident and gray or yellow tipped. Primaries contrastingly marked with yellow, gray, and smoky brown or blackish. Costal region bright yellow at base, gradually becoming more whitish toward the transverse posterior line. Inner margin below vein 1 yellow, shading to gray. A yellow shade begins above the claviform in the submedian interspace, and extends through it into the subterminal space. The subterminal space is gray or yellow beyond the transverse posterior line, sending rays or daggers through the terminal space to the outer margin on veins 3 and 4, and almost to the margin on veins 6 and 7. The terminal space, except as interrupted, is evenly dark or smoky, as is the cell, except the ordinary spots and such portions of the median and basal space as are not contrastingly yellow. Basal line wanting. Transverse anterior line evident as a black oblique mark in the median cell, as an outwardly curved line in the submedian interspace, and occasionally marked by a few scales below vein 1. Transverse posterior line broken, a little lunulate, chiefly marked by the difference in shade between median and subterminal spaces, interrupted on the costa and in the submedian interspace. Subterminal line pale, preceded by a series of interspaceal black, sagittate spots and forming strong dents, cutting the terminal space on

veins 3, 4, 6, and 7. The median vein is white, and below it, in the basal space, is a black shading which becomes diffuse inferiorly. Claviform black ringed, of good size, concolorous. Orbicular oblique, oval, often irregular, varying in size, complete if small, open to the costa if larger, outlined in black, narrowly annulate with white, center yellowish or gray. Reniform upright, rather narrow, filling the end of the cell completely, incomplete above and below, narrow kidney-shaped, defined by black scales and a narrow white annulus, centered with yellow. Secondaries white, with a smoky terminal line from which a faint dusky shade may extend a short distance inward. Beneath, primaries smoky with a dark discal spot and white veins; secondaries white, only a little powdery, with a smoky outer line and a small discal spot.

Expanse, 27 to 33 mm.=1.08 to 1.32 inches.

*Habitat*.—Denver, Colorado; Foothills (Bruce); Calgary, Canada, July 23, August 29 (Dod).

Seven specimens, all males. The three Denver specimens are from as many different collectors, and Mr. Bruce probably collected his example near Golden.

The species resembles my *flavidens*, and I had associated the two, until the occurrence of females of the older species caused a reexamination of the series. In the new form the general color is lighter, the contrasts are much greater, and the secondaries are pure white.

*Type*.—Cat. No. 4791, U.S.N.M.

#### 7. CARNEADES NEVADA, new species.

Ground color ashen gray over fuscous. Head with an indefinite dusky frontal line, palpi brown at the sides. Collar gray tipped, with a black transverse line above the middle and below which there is a paler fuscous shading. Thorax squared, large, vestiture dense, mostly flattened hair, tuftings not well marked, partagia defined. The primaries appear somewhat strigate, owing to the absence of distinct transverse maculation, the paler median vein, and the tendency to define the other veins. Basal line marked only by a pale interruption of a black basal shade, which is not prominent and does not cross the basal space. Median lines marked on the costa only, though the location of the transverse anterior line is marked by the inception of the claviform, and the transverse posterior line may be found by careful search; but practically both are obsolete. Subterminal line obsolete. There is a series of black terminal spots from which blackish rays extend into the interspaces. A pale line at the base of the fringes. Claviform moderate in size, concolorous, outlined in black, pointed at the tip. Orbicular oval, elongate, decumbent, narrowly white-ringed, tending to an outward extension toward the reniform. Reniform small, broadly lunate, outlined by black scales, annulate with whitish. A somewhat paler shading extends obliquely from beyond the reniform to the apex, and a more indefinite lighter shade extends through the sub-



median interspace. Secondaries white, with a distinct, somewhat lunate blackish terminal line, and a dusky interline in the unusually long white fringes. Beneath white, gray powdered, both wings with small discal spots, and a series of distinct terminal lunules; primaries also with a partial exterior line.

Expanse, 35 to 37 mm.=1.40 to 1.48 inches.

*Habitat.*—Nevada.

Three male specimens from Mrs. F. O. Herring, all of them a little rubbed, but very much alike so that all the details could be easily determined. The species belongs with *hollemani* in the *pitychrous* series, but differs obviously in the heavy quadrate thorax, the separate ordinary spots, and the pure-white secondaries.

*Type.*—Cat. No. 4788, U.S.N.M.

#### 8. CARNEADES CONTAGIONIS, new species.

Ground color a very pale yellowish or creamy gray, powdered with black scales. Head and thorax without ornamentation. Primaries with the median lines marked by black spots on the costa, and beyond that vaguely indicated. In the best-marked examples the basal line is black on the costa and has a short mark below the median vein. The transverse anterior line has a black costal dot and below the median vein there is a powdered single line, outwardly oblique and reaching the inner margin at nearly the middle of the wing. The transverse posterior line is marked by a black spot above the reniform on the costa, and then by short black marks on the veins, which give a course outwardly bent over the cell and then almost evenly oblique below. The terminal space is a little black powdered and in a vague way defines an irregular sub-terminal line. Where the powdering is slight there is no trace of the line apparent. Where the powdering is well marked the course of the imaginary line can be made out. There is a series of black terminal lunules. The fringes are concolorous with the rest of the wing. Orbicular an irregular black spot without defined margins, which is sometimes covered by scales of the ground color. Reniform an undefined lunule, also without distinct margin, and occasionally more or less obsolete. Secondaries in the males pure silky white, the veins a little darker marked in some specimens and with a distinct trace of a smoky shade at the base of the fringes. In the female they are somewhat smoky. Beneath white, a little black powdered with a more or less obvious discal spot on both wings—most obvious on the primaries—and sometimes with a broken exterior line.

Expanse, 32 to 35 mm.=1.28 to 1.40 inches.

*Habitat.*—Glenwood Springs, Colorado, August 7, September 10, October 21 (Dr. Barnes); Garfield County, Colorado, 6,000 feet (Mr. Bruce); Verdi, Nevada.

Twelve specimens are under examination and they resemble each other strongly. The ground color varies a little in shading, depending

upon the amount of yellow mixed with the gray. The amount of powdering on the surface is also a variable quantity, and sometimes it may be fairly well covered with black atoms. Of the maculation, the costal dots, representing the beginning of the ordinary lines, are the most constant, and the dusky reniform comes next. The blackish orbicular may be added in better-marked specimens, and finally the lines may become fairly well indicated in the manner already described. The species belongs to the *pitychrous* section of the genus and is somewhat related to *citricolor*. The vestiture does not form evident tufts in any of the specimens before me, and in that particular there is a resemblance to some of the species allied to *bostoniensis*.

*Type*.—Cat. No. 4146, U.S.N.M.

9. CARNEADES LOYA, new species.

Ground color an even dark mouse gray. Collar with a broad, contrasting, transverse band. Thoracic vestiture mixed scales and hair, patagia marked, tuftings evident. Primaries with the ordinary lines traceable only by black scales after close search, and they offer nothing distinctive as far as can be seen. Subterminal line marked by yellow scales forming irregular dots; preceded and followed by an irregular dusky shading. Orbicular moderate in size, ringed with yellowish, concolorous. Reniform elongate kidney-shaped, narrow, ringed with pale yellow, centered with blackish. Claviform wanting. Secondaries yellowish smoky at base, smoky blackish at margins; veins and a discal lunule blackish, fringes yellow at base, smoky centrally and whitish at tip. Beneath, smoky fuscous, powdery, both wings with a discal spot and a partly complete outer line.

Expanse, 36 mm. = 1.44 inches.

*Habitat*.—High Sierras, California (Dr. Dyar).

One female, a little crippled, but so obviously unlike all the known forms that I do not hesitate to describe it. It may be associated with *bicollaris*, from which, however, it differs obviously. There is a possibility that this may be the female of *tocoya* (No. 25), but that would indicate a range of variation that I am not ready to admit without further evidence. *Loya* is the Indian name for the Sentinel, Dr. Dyar says, and the specimen bears his No. 11278.

10. CARNEADES FLAVISCAPULA, new species.

Ground color dull fuscous brown, with small gray powderings. Collar with a black line surmounted by gray scales, inferiorly with a reddish shade which, at the base of the wings, forms a rusty red tuft. Primaries very evenly dusty, the maculation not relieved, and traceable only by careful observation; yet it is all present. The course of the median lines is as usual, and too faintly marked to show characteristic features. Claviform indicated by dusky scales. Orbicular subquadrate, concolorous, defined by a few black scales and a narrow gray ring. Reniform

moderate in size, kidney-shaped, traceable by black and gray scales, its outer middle invaded by a yellowish shading, which is the only obvious bit of color in the wing. Subterminal line fairly indicated by yellowish scales. Thoracic vestiture mixed flattened hair and scales, patagiæ and tuftings very fairly marked.

Expanse, 32 to 33 mm. = 1.28 to 1.32 inches.

*Habitat.*—New Mexico.

Two males from the Hulst collection, in fair condition. This is an obscure form which from its lack of maculation should be referred to the *pitychrous* series, where it has no close allies. It is probably really nearer to the *tessellata* type, but with all the contrasts faded out. Perhaps its best place for ready recognition is with *atomaris*.

*Type.*—Cat. No. 4810, U.S.N.M.

#### II. CARNEADES EXCOGITA, new species.

Ground color varying from mouse gray to fawn; that is, a soft, reddish gray, in which the gray scales vary the tint. Head and thorax concolorous. Palpi black at sides. Collar with a distinct, black, median transverse line, narrowly edged above with paler. Vestiture consists of flattened hair, patagiæ evident, the divided crest and posterior tufts well marked in good examples. Primaries with all the markings obscure; the lines barely traceable and the ordinary spots hardly defined. Basal line indicated by geminate, dusky spots on the costa. Transverse anterior line geminate, in the best marked examples the included space a little paler, outer defining line oblique, out-curved or angulated in the interspaces. Transverse posterior line barely traceable; apparently of the usual type. Subterminal line yellowish, irregular, more or less broken; sometimes marked by a slightly darker preceding shade; sometimes relieved by a dusky tint on both sides of it. Claviform indicated by scattered black scales in some specimens. Orbicular round or nearly so, moderate in size, incompletely outlined by black scales. Reniform concolorous or a trifle dusky, large, kidney-shaped, extending well below the cell, outlined by scattered dark scales and sometimes relieved by a few yellow scales. Secondaries smoky, paler in the male, a little lighter basally, fringes whitish, with dusky interline. Beneath whitish, powdery, disc of primaries smoky, a more or less obvious common line and discal spot.

Expanse, 32 to 37 mm. = 1.28 to 1.50 inches.

*Habitat.*—Glenwood Springs, Colorado, July 3–29 (Dr. Barnes).

Ten examples, evenly divided as to sex, varying only in tint and in the relative distinctness of the markings. In no case is it more than easily traceable, and sometimes the wings are practically immaculate.

The species belongs to the *velleripennis* series and should be readily placed there. It has a vague superficial resemblance to *Noctua piscipellis* without the longitudinal markings.

*Type.*—Cat. No. 4799, U.S.N.M.

## 12. CARNEADES EXCULTA, new species.

Ground color a soft, dark, red-brown, overlaid by gray. Head and thorax immaculate; collar without a transverse line. Vestiture, slightly flattened hair, the tuftings indistinct. Primaries, at first sight immaculate. The median lines indicated on costa by dusky spots and, under a lens, the transverse anterior line can be traced across the wing by a series of golden brown scales. Terminal space slightly darker, thus feebly indicating an irregular subterminal line. Ordinary spots marked by somewhat darker, lead-colored scales and, under the lens, outlined by golden brown scales. Secondaries pale, smoky yellow, darkening to smoky outwardly, fringes whitish yellow. Beneath whitish, powdery costal and outer margins darker, smoky.

Expanse, 33 mm. = 1.32 inches.

*Habitat*.—Northwest British Columbia.

A single male, received from Mr. B. Neunmoegen some years ago and never satisfactorily placed. It resembles *excogita* at first sight, but is more stumpy winged, lacks the prominent black line on the collar, and has the maculation much more completely obsolete.

## 13. CARNEADES NÆVULUS, new species.

Ground color dull, powdery, ashen gray. Head and thorax immaculate, collar with a dusky line just below tip; but this is obscure in most examples. Vestiture composed of long, flattened hair, anterior crest not obvious, posterior tufting fairly well defined, patagia not marked. Primaries with a rough, powdery appearance, none of the maculation well defined. Basal line geminate, smoky, interrupted. Transverse anterior line geminate, smoky, the two parts about equally obscure, outwardly oblique and rather evenly outcurved in the interspaces. Transverse posterior line obscure, fuscous, geminate on the costa, rather squarely bent over the cell, inwardly oblique and very even below this point. Subterminal line irregular, punctiform, pale, sometimes defined by a vague preceding shade, or a slight deepening of the terminal space, and sometimes wanting altogether. A series of blackish terminal lunules, followed by a yellowish line at the base of the fringes. No obvious median shade or line. Claviform very small, and never completely outlined by blackish scales. Orbicular variable in size and shape, concolorous, outlined by black scales, complete only when it is small and round. Reniform large, kidney-shaped, extending below the cell, concolorous, incompletely black ringed. Secondaries dirty white in the male, with a somewhat defined, smoky, powdery outer border, a smoky terminal line, and a discal lunule, the veins being also smoky; in the female they are smoky throughout, but become more whitish and transparent basally; discal lunule evident. Beneath, primaries gray, powdery, secondaries white, powdery along costa, all wings with a discal spot; no evident outer line.

Expanse, 35 to 40 mm. = 1.40 to 1.60 inches.

*Habitat.*—Placer County, California, in September.

Nine males and three females from the U. S. National Museum, collected by Mr. A. Koebele. There is very little variation in the series, save such as is caused by a staining in either a moist cyanide bottle, or a softening jar containing too much carbolic acid.

The form of the orbicular is the only changeable feature, and this is not alike in any two specimens. The species belongs to the *pitychrous* series and has some resemblance to *cogitans*, lacking, however, the black basal streak of the latter species.

*Type.*—Cat. No. 4797, U.S.N.M.

#### 14. CARNEADES MEGASTIGMA, new species.

Ground color dull luteous gray. Head, collar, and thorax immaculate. Thoracic vestiture thin and slightly flattened hair, neither pata-gia nor tuftings well marked. Primaries rough with black powderings, the maculation obscure. Basal line geminate, marked by scattered scales only or obsolete. Transverse anterior line upright or nearly so, outcurved in the interspaces, geminate, but the inner element barely traceable. Transverse posterior line geminate on the costa and to the angle opposite middle of cell, thence single, broken, hardly lunulate, smoky, almost rigidly oblique to the margin. Subterminal line a little paler, powdery, somewhat defined by a preceding powdery shade, which may be absent. A very narrow, broken terminal line, followed by a yellow line at the base of the fringes. No obvious median shade; but in one specimen there is an indication that it might be expected in a large series. Claviform indicated by smoky scales. Orbicular very large, oblique, of the palest ground, defined at the sides only. Reniform large, broad, almost oblong or only feebly kidney-shaped, space between the spots forming a smoky V. Secondaries smoky, whitish toward base, with a discal lunule and veins dusky, fringes white. Beneath, primaries even, dull gray, secondaries more whitish, both with a vague discal spot.

Expanse, 33 to 38 mm. = 1.32 to 1.52 inches.

*Habitat.*—Edge Calgary, August 24; Calgary, September 15, Canada (Dod).

Two females; one, the smaller, in good condition, the other lacking one primary and an abdomen, lost in the mail, but otherwise good. The smaller specimen is the more evidently marked and is quite powdery; the other is more even and, the powdering being absent, the markings are much less distinct. The species has the color of *acornis*, and may for the present be placed in that series.

*Type.*—Cat. No. 4811, U.S.N.M.

#### 15. CARNEADES STIGMATALIS, new species.

Ground color a somewhat light reddish brown, shaded with blackish scales along the veins and sometimes over the entire surface, so as to

give a dull, dark, smoky brown appearance. Head and thorax immaculate. Vestiture, mixed with scales and flattened hair, the thoracic divided crest and posterior tuftings distinct, patagia relieved. Primaries with transverse maculation obsolete or barely traceable. Basal line marked by smoky spots on the costa only. Transverse anterior line, when traceable, almost upright, outcurved in the interspaces, irregularly so in the submedian interspace. Transverse posterior line, when traceable, bent over and close to the reniform, then oblique to the margin, even and inwardly diffuse. Subterminal line irregular, usually marked by yellowish scales and the somewhat darker terminal space; occasionally also by preceding darker scales; rarely it is entirely wanting. A series of small terminal lunules, followed by a yellow line at the base of the fringes. Claviform small, narrow, pointed, usually well and completely defined; sometimes with a filling of yellow scales. Reniform irregular, varying from almost round to obliquely oval, and in size from very small to quite large. It is defined by black scales, within which is a yellow annulus and the center is also a little powdered; in the smallest spot the center is entirely yellow, simply because the annulus takes up all the space inside the black ring. Reniform moderate in size, kidney-shaped, sometimes a little enlarged inferiorly, and extending below the cell. It is defined by black scales, within which is an annulus of yellow scales. The center of the spot is lightened superiorly by yellow scales and darkened inferiorly by leaden gray or blackish. Secondaries whitish, in the male with a narrow soiled outer border which is inwardly diffuse; in the female with a decided, smoky-yellow tinge, the dusky outer border broader. The veins are dusky marked, and there is a narrow, smoky, discal lunule. Beneath whitish, powdery, with a more or less indefinite common outer line and a discal spot on all wings.

Expanse, 37 to 40 mm.=1.48 to 1.60 inches.

*Habitat*.—Glenwood Springs, Colorado, August (Br. Barnes).

One male and 5 females, all in fair condition. The species differs from its nearest allies in the somewhat well-marked veins and the obscurity of its ground color. There are several other points of difference, making up altogether the sum of a good species belonging to the *pitychrous* series.

*Type*.—Cat. No. 4805, U.S.N.M.

#### 16. CARNEADES TERMESSUS, new species.

Ground color luteous gray, with a very even powdering of fine black scales that gives the insects a dusty or ashen appearance. Head and thorax immaculate, palpi rusty yellowish in front. Thoracic vestiture consists of only slightly flattened hair, patagia not relieved, anterior crest feebly, posterior tuft distinctly evident. Primaries with the markings scarcely darker than the ground color, so that at a little distance the wing seems immaculate. Basal line geminate, broken,

marked on the costa only. Transverse anterior line geminate, upright, the two parts more widely separated than usual, a rather sharp outward bend in the cell, another below the internal vein, and a feeble outcurve in the submedian interspace, giving it a somewhat more than usual characteristic appearance. Transverse posterior line geminate, the inner line best marked and a little diffuse, as a whole evenly outcurved over the cell, and scarcely drawn in below. No median shade or line. Subterminal line practically obsolete, though its location can be discerned by slight differences in shading, notably on the costa, where a dusky subterminal shading a very little relieves the apex. A series of very small black terminal lunules. Claviform small, but as well indicated as any other feature. Orbicular moderate, oval, outlined by smoky scales and a very little paler than the ground. Reniform large, kidney-shaped, extending below the cell, concolorous, imperfectly outlined. Secondaries soiled whitish, with a narrow smoky outer border, a distinct terminal line and an evident, blackish discal spot. Beneath, primaries gray, secondaries white, both powdery and with an unusually distinct black discal spot on all wings.

Expanse, 37 to 38 mm.—1.48 to 1.52 inches.

*Habitat*.—Yellowstone Park, Wyoming, in August (Dr. Barnes).

Two males, very much alike, and in good condition. The species belongs to the *pitychrous* series and is allied to *mitis*, than which it is larger, darker, without the reddish cast and with soiled instead of snowy secondaries.

#### 17. CARNEADES ENTERIDIS, new species.

Ground color a very pale grayish yellow. Collar with a narrow black line, edged above with white scales. Thoracic vestiture scaly hair, the tufts and patagia fairly marked, a rosy flush on the disk. Primaries with the cell and terminal space, except apex, smoky; the markings smoky brown, all more or less broken. Basal line geminate, broken in the cell. Transverse anterior line geminate, prominently marked on the costa, obscure to the median vein, where it sends in a long inward tooth, then outwardly oblique and outcurved in the interspaces to the margin, the inner portion very feebly marked. Transverse posterior line geminate, abruptly bent on the costa over the reniform, thence very evenly parallel to the outer margin; inner part crenulated, sending out long teeth on the veins terminating in the venular dots of which the outer element of the line is composed. Subterminal bisinuate, marked by a dusky preceding shade on the costa and below the pale apex, by the dark terminal space. A series of small terminal lunules is followed by a creamy yellow line at base of the fringes, which have double, gray interlines. A median shade crosses between the ordinary spots and a little outcurved below them, the space to the transverse posterior line being somewhat darker than the ground. Orbicular oblong, oblique, creamy gray, with a narrow white annulus

and a ring of black scales which is not complete superiorly. Reniform large, kidney-shaped, outlined by blackish scales which do not form a continuous line, an inner ring of smoky brown, leaving an annulus and central lunule of the paler ground color. Claviform pointed, moderate in size, outline smoky and broken. Secondaries white, with a smoky outer margin, which starts as a line at the anal angle and broadens to a band at the apex; veins and a small discal lunule also smoky. Beneath white, powdery, both wings with a blackish discal spot, primaries with an outer line through the costal region.

Expanse, 37 mm. = 1.48 inches.

*Habitat*.—Pullman, Washington (Piper).

One male in fair condition. The species belongs probably to the *pitychrous* series, though the median shade is traceable. There is nothing sufficiently near to it to cause confusion, while the sharply defined dusky terminal space indicates the *ochrogaster* type of maculation.

#### 18. CARNEADES ATROPULVEREA, new species.

Ground color dull smoky brown, densely and quite evenly powdered with black scales. Head and thorax immaculate, collar with a faint, darker, central line. Thoracic vestiture mixed scales and hair, patagia not relieved, tuftings feebly marked, though evident. Primaries with all the markings obscure and no contrasts of any kind. Basal line geminate, best marked by the yellowish scales in the included space. Transverse anterior line geminate, blackish, and with four small outcurves. Transverse posterior line geminate, evenly and not greatly outcurved over the cell, inner part crenulate, outer even and very feebly marked. Subterminal line scarcely paler, marked by the slightly darker terminal space, and an irregular, somewhat broken, dusky subterminal shading. A series of small terminal lunules, followed by a yellowish line at the base of the fringes. Median shade broad, blackish, diffuse, angulated below the reniform and making the most obvious bit of ornamentation on the wing. Claviform barely indicated. Orbicular obsolete, or barely traceable by a few lighter scales. Reniform moderate in size, upright, kidney-shaped, vaguely defined by an incomplete yellowish annulus. Secondaries even, smoky fuscous, with paler fringes and a feebly defined smoky lunule. Beneath, primaries smoky, a little gray powdered, secondaries gray, powdered with smoky, with a broad, smoky outer band and discal lunule.

Expanse, 37 mm. = 1.50 inches.

*Habitat*.—Denver, Colorado, October 10; Fort Collins, Colorado (Gillette).

Three females, one of them rubbed and otherwise imperfect. Larger and narrower winged than *intrita*, with all the maculation obscured and the median shade unusually evident. The orbicular is almost entirely obsolete and the reniform is very incompletely outlined. It is to be regretted that no male was received.



## 19. CARNEADES COMPRESSIPENNIS, new species.

Ground color dull smoky red brown, roughly powdered. Front brown. Collar with a black median line, below which it is brown. Thoracic vestiture flattened hair, some of it tipped with gray, patagia and tuftings fairly marked. Primaries with the vestiture rough and powdery in appearance, all the markings fragmentary, cell filled with richer brown around the ordinary spots, costa at base, gray powdered. Basal line geminate, broken, black, included space gray. Transverse anterior line geminate, black, inner portion less evident, included space paler, inwardly bent on the median vein, outwardly oblique and out-curved in the interspaces below. A black shading below the median vein connects the inward tooth of transverse anterior line with the outward bend of basal. Median vein obscurely pale powdered. Transverse posterior line geminate, inner portion lunulate, outer even, included lunules reddish. Subterminal line yellowish powdery, a little irregular, marked by a preceding brown shade, the powdering outwardly diffuse, lightening the apex and sometimes the terminal space. A series of small terminal lunules, followed by a yellowish line at the base of the fringes. No obvious median shade. Claviform moderate in size, outlined by black scales. Orbicular irregular, subquadrate, oblique, narrowly pale ringed, center pale powdered. Reniform moderate in size, rather narrow, kidney-shaped, annulate with yellowish gray, the center pale powdered. Secondaries evenly smoky in both sexes, fringes with a yellow line at base. Beneath dull gray, powdery, with very faint ordinary spots and only a trace of an outer line.

Expanse, 33 mm. = 1.32 inches.

*Habitat*.—Yosemite, California, male, Dr. Dyar, No. 9617; female, special locality and source not marked.

One male and one female only, very much alike and in fair condition. The species is allied to *intrita* Morrison, but is much more powdery as well as somewhat broader winged.

## 20. CARNEADES FALERINA, new species.

Ground color pale, whitish luteous with deeper luteous shadings and smoky powderings. Head and thorax concolorous; palpi dusky at the sides, color with rather an indefinite smoky median line, best marked in the female. Thoracic vestiture mixed with scales and flattened hair, patagia marked, tuftings evident though not prominent. Primaries with the markings all present and recognizable, but not strongly marked or contrasting, the lines luteous or smoky. Basal lines geminate, marked by smoky spots on the costa and below the median vein. Transverse anterior line geminate, inner portion less marked, upright or a little oblique outwardly, interrupted in the costal space, with small outcurves in the interspaces. Transverse posterior line geminate on the costa, the outer portion lost below the costal space, inner part

crenulate, evenly outcurved over the cell and just a little drawn in below. Subterminal line of the ground color, irregular, almost angulate, marked by the darker terminal space and by a preceding dusky shade, which is always distinct on the costa, but broken or even obsolete below that point. A series of small, brown terminal lunules. Claviform feebly indicated by darker scales, variable in size. Orbicular round, oval, or elongate, variably evident, outlined by black or dusky scales, and in the female with a dusky central shading. Reniform upright, moderate in size, kidney-shaped, incompletely and imperfectly outlined, the center dusky. There is also a diffuse, darker, luteous median shade, which darkens a trifle the outer portion of the median space and may be scarcely noticeable. In one specimen the ordinary spots are normally separated, in another the orbicular almost touches the reniform, in the third the spots join and seem almost confluent. Secondaries white in both sexes, the veins a little yellowish, a broken, smoky, terminal line and a vague dusky outer shading. Beneath white, a little powdery, with a dusky discal spot and an incomplete, powdery outer line on all wings. The fringes, especially on secondaries, are unusually long.

Expanse, 37 to 40 mm. = 1.48 to 1.60 inches.

*Habitat*.—Glenwood Springs, Colorado, August and October (Dr. Barnes); Nevada (Mrs. Herring).

Two males and one female, all different, yet I believe representing one species only. The long fringes to the secondaries, the plump, heavy body, and the rather lengthily serrated male antennæ suggest a *Porosagrotis*, but the genitalia agree with the *Carneades* type. In the male type the smoky powdering is quite evenly distributed, except in the subterminal space, and all the maculation is obscure. The male cotype is less powdery and all the markings are in consequence better defined. The female type while less powdery is quite as obscurely marked as the first-mentioned male. More material would be very desirable to fix the range of variation in this species.

*Type*.—Cat. No. 4785, U.S.N.M.

#### 21. CARNEADES VALLUS, new species.

Ground color very pale gray, over a pale luteous base. Palpi yellow in front, dusky at the sides. Beneath dusky. Vestiture, thin, hairy, somewhat divergent. Top of head and base of collar whitish, the latter tipped with yellowish hairs. Thoracic vestiture forming no obvious tufts; but posteriorly the hair is tipped with yellowish. Primaries quite densely black powdered, darkening the wing beyond the transverse anterior line. All the lines single. Basal line blackish, distinct, reaching the submedian vein, bent on the median. Transverse anterior line smoky, a little outcurved, with three interspaceal outcurves, of which that in the submedian interspace is the longest. Transverse posterior line obscure, crenulated, unusually close to the outer margin,

broadly outcurved over the cell, then parallel with the outer margin. Subterminal line barely indicated by a series of dusky spots. Median shade broad, diffuse, vague, a little outwardly bent at its middle. Orbicular round, moderate in size, a little paler than the ground, but not otherwise defined. Reniform moderate in size, undefined and incomplete, a little paler than ground, but with a central dusky crescent, which is diffuse and leaves the lower part of the spot scarcely separable from the ground. No trace of claviform. Secondaries smoky, pale gray, scarcely darker outwardly, veins marked, and end of cell indicated by a narrow lunule. Beneath, pale yellowish gray, silky, both wings with an obscure outer shade line and a vague discal spot, secondaries with a blackish line through the cell from base almost to the lunule.

Expanse, 40 mm.—1.60 inches.

*Habitat*.—Laggan, British Columbia, 5,000 feet, September 9 (Bean).

A single female only, in fair condition. The species is allied to *bostoniensis*, but is much more obscure and powdery. It has that peculiar pallid, washed-out appearance that is characteristic of northern mountain forms, as well as the loose, woolly vestiture. I know of nothing with which this might conflict.

#### 22. CARNEADES SESSILE, new species.

Ground color an even, dull, smoky gray, without marked contrasts of any kind. Head and thorax concolorous, the palpi tipped with yellow. Vestiture hairy; but somewhat flattened, not loose or diverging. Collar well relieved, patagia not differentiated, tuftings barely indicated in the female, fairly suggested in the male. Primaries with a faint reddish shading, best marked in the male, very evenly and not densely black powdered. Basal line geminate, broken, blackish, not well marked. Transverse anterior line smoky, geminate, the two parts almost equally well defined, almost upright to the median vein, a little outcurved below, and a longer, outward loop below the internal vein. Transverse posterior line geminate, inner portion evenly outcurved over the cell, lunulate and a little incurved below; outer part obscure, smoky, even. Subterminal line vaguely traceable, really visible only near the costa, where it is marked by the contrast between the apex and a slightly darker subterminal shading. Median shade diffuse, rather broad, slightly darker than the ground color and a little darkening the cell between the ordinary spots. Claviform small, concolorous, completely outlined in smoky. Orbicular irregularly oval, decumbent, outlined in black, of the ground color or a very little paler. Reniform large, broad, irregular, extending below the median vein, outlined by black scales, concolorous or a very little paler. There is a narrow, black, broken, terminal line, followed by a yellowish line at the base of the fringes. Secondaries smoky yellowish, paler at the base, in the male rather whitish, with a smoky discal lunule and a white fringe which, in the

female, is somewhat contrasting. Beneath whitish, powdery, disk of primaries smoky, darker in the female; no outer line; but a discal spot on all wings.

Expanse, 40 mm. (male) to 42 mm. (female) = 1.60 to 1.68 inches.

*Habitat*.—Colorado (Bruce); Hall Valley, August (Barnes).

One male (Bruce) has been in my collection for years; the female has been recently received from Dr. Barnes. The species is much more obscure throughout than *messoria*, and the hairy vestiture throws it rather to the *bostoniensis* series, where it does not conflict with any described species.

A third specimen, also from Colorado, near Denver, I refer doubtfully to this species. It expands only 35 mm., is more sharply marked throughout, and the subterminal space is uniformly darker, relieving a subterminal line which is distinctly toothed on veins 3 and 4. The secondaries are also more whitish and the smoky outer border is better defined.

### 23. CARNEADES RELAXUS, new species.

Ground color pale, smoky fuscous, with a slightly reddish tint. Head and thorax concolorous. Palpi tipped with yellowish, dusky at the sides. Collar with an incomplete brown line near the tip. Thoracic vestiture of flattened hair, patagia hardly relieved, tuftings just indicated. Primaries without contrasts, the lines smoky rather than blackish. Basal line geminate, indicated on the costa and submedian interspace only. Transverse anterior line geminate, inner line marked on costa only, outer a little oblique and feebly outcurved in the interspaces. Transverse posterior line geminate, outer line lost below the cell, inner crenulated, as a whole outcurved over cell, and then almost parallel with the outer margin. Subterminal line pale, irregular, with small teeth on veins 3 and 4, relieved by a continuous, dusky, preceding shade, the terminal space being also more or less dusky. A series of brown, terminal lunules. Median shade vague, diffuse, barely traceable. Claviform absent in the specimens before me, but I should expect to find indications of it in the species. Orbicular round or oval, outlined by black or smoky scales, concolorous, center with or without dusky powderings. Reniform large, kidney-shaped, extending a little below the cell, outlined by black scales, center more or less dusky inferiorly. Secondaries very pale yellowish, becoming smoky outwardly; fringes whitish, discal lunule present. Beneath whitish, powdery, a more or less obvious common outer line, and all wings with discal spots.

Expanse, 38 mm. (male) to 39 mm. (female) = 1.52 to 1.56 inches.

*Habitat*.—San Francisco and Sierra Nevada, California.

One male and one female, and there is just a little doubt as to their really being sexes of the same species; line for line they are the same, and such little differences as occur are well within the range of varia-

tion in allied species. Nevertheless there is a vague dissimilarity which prevents my marking the female as a type, though it is the better example of the two.

At first sight this closely resembles *sessile* and is, indeed, its near ally; but it is paler, with a more yellowish tint throughout; there is no obvious claviform, the subterminal line is entirely obvious, and the transverse posterior line is crenulated and practically single below the cell.

*Type*.—Cat. No. 4800, U.S.N.M.

24. *CARNEADES LUTEOSITUS*, new species.

Ground color dull luteous, with rusty shadings on thorax and primaries. Head and thorax else immaculate. Vestiture hairy, patagia marked, tuftings obscurely indicated; thorax as a whole small in comparison with the long abdomen, which considerably exceeds the hind angle of the secondaries in both sexes. Primaries with ornamentation well defined. Transverse lines all single, broad, a little diffuse. Basal line distinct. Transverse anterior line upright, a little outcurved in the submedian interspace. Transverse posterior line with a broad, even outcurve over the cell, oblique or a little incurved below, with little, sharp points on the veins. Subterminal line marked by a dusky preceding shade, very even, the subterminal space sometimes with pale scales, lightening it perceptibly. A series of narrow, dusky, terminal lunules. Median shade not obvious in the male, in the female dusky, diffuse; oblique between the ordinary spots and parallel with transverse posterior line below. Orbicular large, round, without defining line, save the contrast between its paler shade and the surrounding ground. Reniform marked chiefly by a smoky lunule with irregular paler edges. Claviform wanting. As a whole the basal space is a little paler, somewhat gray powdered; the median space is somewhat the darkest and shaded with rusty and blackish. Secondaries dark smoky, paler at base, with a blackish lunule and yellow fringes. Beneath paler reddish luteous; all wings with a discal lunule and an incomplete outer line.

Expanse, 35 to 36 mm. = 1.40 to 1.44 inches.

*Habitat*.—Hall Valley, Colorado, July 24 to 30 (Dr. Barnes).

One male and one female, both in good condition. In maculation the species resembles *bifasciata*, but in color it is totally different, and, indeed, also in the course of the lines. The male is somewhat aberrant for a *Carneades* in having the antennal joints only a little marked and the lateral tuftings short and feeble.

25. *CARNEADES TOCOYÆ*, new species.

Ground color a dull, pale, brick red, overlaying a yellowish base. Collar with a feebly marked central line. Thoracic vestiture flattened hair, tufts obvious. Primaries with the marking only a little darker,

not contrasting, the included space in the geminate median lines lightened by yellow. Basal line brown, geminate, best marked by the included yellow shade. Transverse anterior line almost upright, broadly outcurved in the interspaces. Transverse posterior line geminate, outer part faint, even; inner crenulate, brown, as a whole evenly and not greatly outcurved over the reniform, evenly oblique below. Subterminal line irregular, broken, paler, marked by a slightly darker preceding shade, the terminal space marked with dusky in the veins. Median shade line narrow, blackish, a little irregular, as a whole a little outcurved. A series of black terminal lunules, beyond which is a yellow line at the base of the fringes. Claviform barely indicated. Orbicular small, round, outlined in yellow. Reniform moderate in size, kidney-shaped, rather narrow, outlined in yellow, filled with blackish. Secondaries yellowish at base, becoming smoky outwardly, veins and a discal lunule also smoky. Fringes yellow at base, whitish at tip, with a smoky central line. Beneath dull yellowish, powdery, primaries with a diffuse blackish oval, representing the pale outline of the reniform above; secondaries with a small black discal lunule.

Expanse, 37 mm. = 1.48 inches.

*Habitat*.—High Sierras, California (Dr. Dyar).

A single male in fair condition, No. 11277. The species has no very close allies, but may come at the end of the *bostoniensis*, or at the head of the *messoria* series. In either case it is readily distinct.

*Tocoya*, according to Dr. Dyar, is the Indian name for the north dome, near where this insect was taken.

#### CARNEADES MESSORIA Harris.

In this species all the normal maculation is well written, and all the usual spots are evident. Basal, transverse anterior and transverse posterior lines are obviously geminate, and while the inner part of the transverse anterior and outer part of the transverse posterior line are less obvious, and may be even somewhat obscure, there is never any doubt of their actual presence. The median shade is equally obvious in most cases, and is sometimes as well marked as the median lines, though always a little diffuse. It is sometimes almost upright, but as a rule is a little outwardly oblique from the costa to the inferior margin of the reniform, and from that point is nearly upright to the inner margin, which it reaches close to the transverse posterior line. The transverse anterior line is a little oblique outwardly, with three main interspaceal outcurves, of which that in the submedian interspace is broadest, but as a rule not quite so much exerted; that below the submedian vein is always most bent outwardly. The transverse posterior line is very evenly bent over the cell, and is then oblique below, hardly incurved in any case, unless exceptionally. The inner part of the line is crenulate, and the outer portion crosses the tips of the points, leaving inclosed a series of lunules of the ground color or a

little paler. The subterminal line is always obvious and usually a little paler; but it may be concolorous and only defined by the somewhat darker terminal space. There may be a preceding dark or dusky shade and this may be broken; but it never forms sagittate spots or dashes, and it is never prominent. In no case is the terminal space paler than the subterminal, or as pale as the lighter parts of the wing. There is no basal dash or longitudinal mark of any kind. The claviform is narrow, concolorous, very rarely completely outlined, sometimes a mere blackish lunule indicating its tip; sometimes very short, sometimes extending to the middle of the median space; often very obscure, but always traceable in good specimens. The orbicular is of good size, black ringed, varying in shape from round to irregularly oval, oftentimes oblique. There is often a paler annulus within the black ring, and the entire spot is usually even and a trifle paler than the ground color of the wing; rarely it is just a little powdery, but is never dark centered. The reniform is always large, kidney-shaped, usually a little oblique, outlined by blackish scales, and within this a paler annulus which is only a slighter paler tinge of the ground and never prominent. The interior is also a little pale, but with a dusky powdering which yet leaves the spot as a whole paler than its immediate surroundings. The ground color of the primaries is a graying luteous with blackish powderings and little if any trace of red or brown. The cell between and beyond the ordinary spots is always a little the darkest portion of the wing, and sometimes the space between the median shade and transverse posterior line is also involved; but there are never any strong contrasts. The secondaries are whitish, with a faint yellow tinge, somewhat more pronounced in the female, and there is a smoky outer border, varying in width, always undefined, very narrow in the male, sometimes darkening almost half the wing in the female, especially along the inner margin.

The collar has always a black or blackish transverse median line.

The expanse varies from 32 to 42 mm., but the great majority of examples will be from 35 to 37 mm., without much difference in favor of the female.

The 25 males and 14 females under observation are distributed as to locality from the Atlantic to the Pacific, and there is no geographic variation observable.

The species has been thus carefully described as to its essential characters that others allied to it, actually or superficially, might be differentiated comparatively; and it is especially useful for this purpose because it is at once the most abundant and the most widely distributed of the forms, so that all collectors are most likely to possess examples.

#### 26. CARNEADES INCUBITA, new species.

Is a close ally of *messoria*, from which it differs at first sight in the darker, blackish gray, ground color. In the female there is hardly a trace of the pale luteous ground, which is, however, easily seen in the

male. The general type of maculation is the same; but in the new species it is darker, more clearly written, while a white powdering on the costal cell and along the median vein gives a somewhat characteristic appearance. The cell around the ordinary spots is evidently darker and the centers of the spots themselves are dusky. This, in the case of the orbicular, serves as an easy method for ready differentiation, for in *messoria* this spot is never darkened; in the new form it is obviously dusky in every case, leaving a pale annulus inside the black defining ring. The transverse line in the collar is much more feebly marked than in *messoria* and the secondaries have the dusky shading blackish, rather than yellow tinged.

Altogether, while the individual differences are slight, the sum of the characters and their uniformity in the series before me indicates a good species.

Expanse, 35 to 42 mm. = 1.40 to 1.68 inches.

*Habitat*.—Pullman, Washington, in August (Piper); Santa Cruz Mountains, California (Ehrhorn).

Five males and six females.

*Type*.—Cat. No. 4803, U.S.N.M.

#### 27. CARNEADES TERRENUS, new species.

Ground color a dull, luteous, gray brown, irrorate with coarse black scales. Collar with a blackish transverse line. Primaries with all the markings present and of the *messoria* type. Transverse anterior line more nearly upright and the outcurves less marked. Transverse posterior line practically as in *messoria*. Subterminal line vague, broken, preceded by a more or less evident broken, blackish shade, which is never contrasting. Terminal space not darker than the ground. Median shade very vague and diffuse, sometimes scarcely traceable. Claviform never complete, usually marked by a few scales only, often obsolete. The ordinary spots much as in *messoria*, save that they are less relieved and the reniform is smaller, without central powderings. The cell between the ordinary spots is dusky; but this shade rarely extends beyond the reniform or into the median space. Secondaries even, smoky fuscous in both sexes, a little darker in the female.

Expanse, 35 to 40 mm. = 1.40 to 1.60 inches.

*Habitat*.—Pullman, Washington, June and July (C. V. Piper).

A series of 12 males and 5 females is quite uniform in general appearance, obviously distinct from *messoria* by the darker, coarsely powdered primaries, on which the usual maculation is obscure, and by the uniformly dusky secondaries. The new species also averages larger than its ally, the majority of the examples attaining 38 mm.

*Type*.—Cat. No. 4802, U.S.N.M.

#### 28. CARNEADES TERRITORIALIS, new species.

Ground color a very light reddish gray, tending to mouse gray, even, hardly powdery. Head and thorax immaculate, collar with a dusky



central line. Vestiture mixed scales and hair, patagia evident, anterior crest and posterior tuft distinct. Primaries with all the normal *messoria* markings present, very neatly and finely written. Basal line geminate, black, very distinct. Transverse anterior line geminate, inner part tending to become lost, outer fine, blackish, as a whole outwardly oblique, with strong outcurves in the interspaces, the one below vein 1 being the longest. Transverse posterior line geminate, outer portion even and tending to become lost, inner slender, crenulate, blackish; as a whole the line is abruptly bent on the costa and after a gentle curve over the cell it is almost straight to the hind margin. Subterminal line pale, a little irregular, broken, with somewhat longer dents on veins 3 and 4, marked on the costa by a dusky subterminal shade and below the clear apex by the dusky terminal space. There is a distinct though narrow black terminal line, somewhat thickened in the interspaces and followed by a narrow yellow line at the base of the fringes. Median shade smoky or blackish, rather narrow, margins a little diffuse, forming an obtuse angle against the reniform. Orbicular always traceable, concolorous, never completely outlined, rather small. Orbicular moderate or small, round or a little oval, narrowly black ringed, concolorous or a little paler. Reniform large, kidney-shaped, rather narrow, extending a little below the cell, not well defined except at the sides, incompletely pale ringed, center somewhat dusky. Secondaries in the male white, with an iridescent smoky tinge, especially toward the edges; veins, very small discal spot and outer margin narrowly smoky; in the female, transparently smoky, whitish toward base, else as in the male. Beneath white, disc of primaries smoky, a small, common discal dot, primaries often with an incomplete exterior line which is sometimes also begun on the secondaries.

Expanse, 32 to 36 mm. = 1.28 to 1.44 inches.

*Habitat*.—Denver, October 12; Salida, August 10 (Osler); Glenwood Springs, October 1-7 (Barnes), all in Colorado; Pullman, Washington, September 24 (Piper).

Two males and three females are before me. The species resembles and is no doubt confused with *messoria*, but it is much more neatly marked, more even in ground color, with smaller ordinary spots and altogether paler secondaries. The species varies in ground color and in the relative distinctness of its ornamentation, but can always be separated from *messoria* by the characters given, when the two are side by side.

*Type*.—Cat. No. 4793, U.S.N.M.

29. CARNEADES FULDA, new species.

Ground color pale reddish brown, washed with gray, very even. Collar with a faint transverse line. Thoracic vestiture mixed scales and hair; patagia marked, a few black scales indicating a submargin, tuftings obvious. Primaries with all the markings faint, slender, not at all

contrasting, more or less broken and incomplete. Basal line geminate, blackish, marked only on the costa and submedian interspace. Transverse anterior line geminate, broken, brown, inner part of line tending to become lost; outwardly oblique, outcurved in the interspaces, a long bend below the submedian reaching nearly to the middle of the margin. Transverse posterior line geminate, fine, brown, inner part crenulate, outer even and scarcely marked; as a whole very evenly outcurved over the cell and evenly oblique below. Subterminal line marked by the somewhat more dusky terminal space except at apex, where a dusky shade precedes it, the contrasts being very feeble. Terminal line fine, black, continuous, followed by a yellow line at the base of the fringes, which are interlined with brown. Median shade feebly marked, almost upright, slightly darkening the space between the ordinary spots. Claviform indicated by a few scattered, blackish scales. Orbicular rather large, oval, decumbent, concolorous, outlined at sides by black scales. Reniform moderate in size, kidney-shaped, extending a little below the cell, incompletely outlined in black scales, with an incomplete pale annulus, the center dusted with lead-colored scales. Secondaries smoky whitish, paler at the base, veins dusky, discal lunule small, terminal line brown, fringes whitish. Beneath, whitish, powdery, disc darker, secondaries with a feeble discal lunule.

Expanse, 34 to 36 mm.—1.36 to 1.44 inches.

*Habitat*.—Alameda County, California, September.

Two female specimens from the U. S. National Museum, collected by Mr. A. Koebele. The species is of the *messoria* type, but very obscure, the markings not relieved against the reddish-gray backing. In the slender median lines it resembles *territoralis*, than which it is more red and decidedly more obscure.

*Type*.—Cat. No. 4792, U.S.N.M.

### 30. CARNEADES ITODES, new species.

Ground color a very pale luteous, washed with light reddish. Head and thorax concolorous, palpi smoky at the sides, collar with a smoky transverse median line. Thoracic vestiture mixed scales and flattened hair, patagia marked, anterior crest and posterior tufting well defined. Primaries very even in tint, all the markings smoky brown, quite evident; but not contrasting. Basal line geminate, complete, included space a little paler. Transverse anterior line geminate, inner portion not so well marked, oblique, with 4 subequal and not strongly marked outcurves. Transverse posterior line geminate, outer line vague, even, inner crenulate, included space a little paler. As a whole it is abruptly bent over the cell and a little incurved below. Subterminal line of the ground color, defined by the slightly darker terminal space and a dusky preceding shade, which is irregular, but continuous and best marked on the costa. A series of distinct, dusky, narrow, terminal lunules. Median shade rather narrow, diffuse, outwardly oblique and darkening

the space between the ordinary spots, evenly oblique inward and well removed from the transverse posterior line from the lower angle of the reniform. Claviform wanting, but there is a narrow and scarcely defined yellowish mark occupying its place and extending to the median shade. Orbicular round or nearly so, moderate or small, annulate with yellowish, centered with the ground color, darkened by a few dusky scales. Reniform moderate in size, kidney-shaped, extending a little below the cell, outlined in yellowish, filled with leaden gray or smoky. Secondaries yellowish white, darkening a little at the outer border to a distinct dusky terminal line; veins and a narrow lunule also a little darker. Beneath white, with a glistening yellowish tint, more or less powdery, primaries with an obvious discal lunule, secondaries with a small dusky spot.

Expanse, 37 to 40 mm. = 1.48 to 1.60 inches.

*Habitat*.—Arizona (Dr. Barnes).

Three good females, with no more definite locality than above given. The species is easily different from any heretofore described, though resembling at first a reddish *canis*. The vestiture here is scaly rather than hairy, however, and the very evenly marked ornamentation is characteristic rather of *messoria*, near which the new form must be placed.

### 31. CARNEADES LAGGANÆ, new species.

Ground color dull, dark, ashen gray, with fuscous powderings. Collar gray and dark powdery, with a black, median, transverse line. Thoracic vestiture mixed scales and flattened hair, somewhat loose, patagia well marked, margins edged with black scales, tuftings distinct. Primaries with the markings well written, blackish, not strongly contrasting. Basal line geminate, distinct, dentate. Transverse anterior line geminate, outer portion broad and black, inner narrow and smoky, outwardly oblique, irregularly outcurved in the interspaces, the longest curve below vein 1. Transverse posterior line geminate on the costa, below which the outer portion is lost, the inner smoky, lunulate, with long outward venular points, only a little outcurved over cell, parallel with outer margin. Subterminal line indicated by irregularly placed paler scales, relieved by darker preceding scales. A series of blackish terminal lunules, followed by a pale line at base of fringes. Median shade line oblique between the ordinary spots and somewhat darkening the cell, thence, from the inferior angle of the reniform, close to and parallel to transverse posterior line, the intervening space becoming slightly dusky and giving the effect of a narrow darker band. Claviform small, very narrowly outlined by black scales. Orbicular a little paler than ground color, without powderings, of good size, narrowly black ringed. Reniform kidney-shaped, rather narrow, not powdery, not extending below cell, very narrowly black ringed. Secondaries even smoky gray, the veins hardly darker,

fringes paler with a yellow line at base. Beneath, dull gray, with a small dusky discal spot and a broad, diffuse, darker outer band, which is complete on both wings.

Expanse, 33 mm. = 1.32 inches.

*Habitat*.—Laggan, British Columbia (Bean).

A single perfect male. The species is evidently allied to the *messoria* series, but has broader, more pointed primaries than usual, and the antennal processes are very small, the tufts of soft hair rather than bristles. These characters, as well as the dentate basal, and unusually irregular transverse anterior lines, will serve to characterize the species.

32. CARNEADES ONTARIO, new species.

Ground color dull, smoky fuscous. Head with a brown transverse line. Collar with a dusky transverse shade. Thoracic vestiture scaly hair, rather loose, neither tufts nor patagia well marked. Primaries rather powdery, median space a little darker, transverse lines blackish, not contrasting. Basal line geminate, broken in the cell. Transverse anterior line geminate, almost upright, irregular in the interspaces, inner part much less distinct than outer. Transverse posterior line geminate to the outcurve, then single, crenulate, a little drawn in. Sub-terminal line indicated by a few pale scales and a vague preceding shade which is fairly obvious in the costal region. A series of brown terminal lunules, followed by a very narrow pale line at base of fringes. Median shade line vaguely indicated. Claviform absent in the specimen. Orbicular indicated by a diffuse, undefined, pale blotch. Reniform marked by a blackish, oblong blotch, partly bounded by paler scales. Secondaries smoky, with a yellow tinge basally, veins and a discal lunule blackish. Fringes whitish. Beneath, primaries smoky, secondaries gray, both powdery, with a discal blotch and a broad diffuse outer shading.

Expanse, 33 mm. = 1.32 inches.

*Habitat*.—Sudbury, Ontario.

A single male, source not noted on the specimen. It is an ally of *laggana*, with similar wing form and general habitus, but much darker throughout, the antennæ having the joints much better marked. In fact, while at first sight the species are obviously similar, careful comparison shows numerous other distinctive points.

33. CARNEADES TESTULA, new species.

Ground color creamy gray, powdered with black. Collar with a faint, smoky, transverse line. Thoracic vestiture long flattened hair, patagia and tuftings only fairly evident. Primaries with all the markings powdery, obscured. Basal line geminate, broken, blackish, not well marked. Transverse anterior line geminate, rather diffusely marked on the costa, thence slender, the two parts equally evident, almost

upright, outwardly bent in the interspaces. Transverse posterior line geminate, blackish, evenly outcurved over the cell, a little incurved below, inner line best marked and lunulate, outer more diffuse and more faint, but also lunulate. Subterminal line irregular, broken, pale, marked on the costa by a preceding dusky shade, leaving the apex clear, and below this by blackish preceding or following powderings. A series of small, dusky, terminal lunules, followed by a yellowish line at the base of the fringes. A faintly marked, diffuse, dusky median shade darkens the space between the ordinary spots and crosses thence obliquely and evenly inward to the margin. Claviform small, the outline traceable by a few black scales only. Orbicular round or nearly so, concolorous, outlined by black scales. Reniform large, broad, kidney-shaped, concolorous, narrowly outlined by black scales. Secondaries dull grayish white, with a rather broad smoky outer border, the fringes whitish with a yellowish line at base; veins and a discal lunule smoky. Beneath gray, powdery, primaries darker, both wings with a discal spot.

Expanse, 36 mm. = 1.44 inches.

*Habitat*.—Calgary, Canada (Dod).

A single male, in good condition. This is an obscure powdery form allied to *laggana*, but with whitish secondaries and better-marked antennal joints. A distinctive character is the doubly lunate transverse posterior line, which is not shared with any of its allies.

#### 34. CARNEADES DIFFORMIS, new species.

Ground color dull gray or smoky, powdery. Collar with a smoky median line. Thoracic vestiture hairy with some flattened hair intermixed, loose, patagia and tuftings well indicated. Primaries with the markings all coarsely written though not always distinct. Basal line geminate, black, slender, very close to base. Transverse anterior line outwardly oblique, outcurved between the veins and broken on them, geminate, inner part narrow, brown, rather even, outer black, broad, seeming rather a series of heavy black or brown curved marks than a line. Transverse posterior line geminate, evenly outcurved over cell and drawn in below, the outer line even, brown, the inner composed of thick black or smoky lunules separated by the gray veins. Subterminal line irregularly sinuate, gray, narrow, marked by a broad, irregular, smoky preceding shade, which may or may not be cut with gray on the veins, the terminal space more or less dusky powdered. A series of black or brown terminal lunules, fringes luteofuscon. An upright or slightly curved median shade crosses the wing between the ordinary spots and may darken the outer portion of median space. Claviform small, barely indicated or fairly evident. Orbicular moderate or rather small, round or nearly so, gray filled, outlined by black scales. Reniform moderate in size or rather small, kidney-shaped or tending to become a little constricted centrally, narrowly outlined by black scales, more or less smoky filled. Secondaries white with a yellowish tinge in the male,

smoky with a yellowish tinge in the female. veins and a discal lunule darker. In the male there is an evident exterior dusky line, more or less broken, beyond which the wing is somewhat smoky to the smoky terminal line. Fringes white in both sexes and in the male unusually long. Beneath whitish gray, rather even, with a distinct discal spot and a broad, blackish outer line nearly complete on all wings.

Expanse, 30 to 33 mm. = 1.20 to 1.32 inches.

*Habitat.*—Oregon (Schaus).

Two males and one female, all different. The female is best marked and the main points in the description are from that specimen. One of the males is similar but much more obscure, all the black being changed to smoky brown, and in neither of these is the median shade anything more than a vague suggestion. The second male is intermediate in distinctness of maculation save that the shadings to the subterminal line are obscured by a universal dusky shading, and here the median shade is present without doubt and darkens the space between the ordinary spots. These latter are large also in this last specimen, and I was at first strongly inclined to reject it as a member of this species. It agrees, however, in all other features, and particularly in the outer line of the secondaries above, which is not usual, and in the broad outer line of the under side.

The antennal processes in the male are unusually long, so that the brush-like structure is prominent.

### 35. CARNEADES DAKOTA, new species.

Ground color a sordid clay yellow, powdered with smoky. Head and thorax concolorous. Vestiture hairy, but coarse and somewhat flattened; the tuftings not obvious in the specimens. Primaries without contrasts, the ordinary maculation written in blackish. Basal line unusually distinct, geminate, the two portions well separated. Transverse anterior line upright or a little oblique outwardly, marked by geminate black spots on the costa, below which the inner line is lost, and the outer is made up of three interspaceal lunules preceded by a somewhat paler shade. Transverse posterior line geminate on the costa, the outer line becoming lost in the outcurve over cell, inner line slender, crenulate, very oblique inwardly below the cell and a little incurved. Subterminal line vaguely marked by a slightly darker subterminal shade. A series of smoky, interspaceal terminal lunules. Median shade broad, diffuse, smoky, almost upright, and crossing just inside the reniform. Claviform absent. Orbicular absent or marked by a dusky central dot. Reniform marked by a blackish or smoky kidney-shaped spot. Secondaries dirty-gray at base, smoky fuscous outwardly, fringes nearly white. Beneath whitish, powdery, both wings with outer lines and discal lunules.

Expanse, 32 to 34 mm. = 1.28 to 1.36 inches.

*Habitat.*—Dakota: No definite locality.

Two males, neither in first-class condition. In vestiture and wing-form the species suggests *audentis*, which is a bright-colored form. The dusky reniform and obsolete or punctiform orbicular, combined with the other characters noted, should make this an easily recognizable form, though sordidly obscure in appearance.

*Type*.—Cat. No. 4790, U.S.N.M.

36. *CARNEADES HOLOBERBA*, new species.

Ground color dull smoky brown with a purplish shade. Head concolorous. Collar with a distinct black median transverse line surmounted by purplish gray. Vestiture of thorax mixed scales and flattened hair, patagia slightly relieved, anterior divided crest and posterior tufting distinct. Primaries with all the markings distinct, the lines black or blackish, but not contrasting against the dark ground, the included spaces a little paler and serving to relieve the defining portions. Basal line geminate, evenly outcurved, distinct throughout. Transverse anterior line upright or a little oblique outwardly, somewhat irregular, the inner line hardly darker than the ground, outer black. Transverse posterior line sharply bent on the costal vein, then parallel with the outer margin. Outer line even, hardly darker: inner black, lunulate, the points much more extended on the veins. Subterminal line distinct, paler, more or less broken, forming a feeble **W** on veins 3 and 4, marked by the slightly darker terminal space and a distinct, blackish brown preceding shade, which tends to break up into sagittate spots. A series of small, black, terminal lunules. Fringes concolorous. Median shade vaguely marked in one specimen. Claviform small, more or less completely defined by black scales, lightened by a few paler scales. Orbicular round or a little oval, small or moderate in size, paler in color and with a few darker, central scales. Reniform moderate, kidney-shaped, upright, incomplete above and below, black-margined within, outwardly with brown scales, a narrow, incomplete pale annulus relieving the spot from the slightly darker cell. Secondaries dull, smoky brown, fringes a little paler. Beneath smoky, powdery, with an outer line and discal spot, much better marked on the secondaries.

Expanse, 38 mm. = 1.52 inches.

*Habitat*.—Calgary, Canada, July 4 and 6 (Dod).

Two female specimens in good condition. The species resembles *brunneigera*, but is much darker brown, with a purplish tinge, and the lines are obviously geminate and even in general appearance.

37. *CARNEADES KERRVILLEI*, new species.

Ground color very pale, creamy gray, powdery. Head with a transverse blackish line across the middle, palpi blackish at sides. Collar yellow tipped, else blueish powdered. Thoracic vestiture mixed scales and hair, tuftings indefinite, yellow tipped, patagia gray powdered, somewhat relieved. A tuft of long white hair at base of abdomen.

Primaries with all the lines smoky, not contrasting. Basal line apparently single, interrupted, very close to base. Transverse anterior line upright or even a little inwardly oblique, inner line best marked, a little outcurved in the submedian interspace, outer line powdery, diffuse, leaving a rather wide included space. Transverse posterior line single, blackish, very even, only a little outcurved over the cell and rigidly oblique below it. Beyond this line the wing is a little darker powdered. Median line smoky, fairly defined, almost midway between the median lines and, as nearly as possible, parallel to them in course. Subterminal line blackish, broken into irregular spots, of which the largest is on the costa, in course only a little uneven. Terminal dusky lunules very small. Claviform wanting. Orbicular large, round, not defined, marked by a gray central powdering. Reniform of good size, kidney-shaped, somewhat faintly outlined by dusky scales, gray-filled inferiorly. Secondaries white, with a small discal lunule, and a narrow, smoky, powdery outer border. Fringes white. Beneath white, powdery, primaries a little darker, with a discal spot and a vague subterminal line; secondaries with a small discal lunule only.

Expanse, 36 mm. = 1.44 inches.

*Habitat*.—Kerrville, Texas (Dr. Barnes).

A single male, in good condition. The species is allied to *lineifrons* and the series related to it, but is not to be confused with either. The transverse lines divide the wing into five spaces which narrow regularly from the base outward, and all the lines are essentially parallel to each other. The ordinary spots are so obscured that they require a second look to be recognized, and this, with the peculiar mottling of creamy yellow and bluish gray scales, is distinctive. The anterior tarsi—all that remain—are annulate with black and the antennæ have the serrations not very much marked.

### 38. CARNEADES TERNARIUS, new species.

Ground color smoky fuscous, obscure, varying to red brown. Head with a brown or blackish frontal line. Collar with a feebly marked, dusky, transverse line. Thoracic vestiture mostly flattened hair with finer hair intermixed, patagia feebly marked, tufts obscure. Primaries with all the markings obscure, the blackish diffuse median shade being the most obvious feature. Basal line geminate, blackish, broken. Transverse anterior line geminate, upright, a little outcurved in the interspaces, blackish, broken, inner portion tending to become obsolete or entirely so. Transverse posterior line geminate, evenly outcurved over the cell, a little incurved below, outer portion even, sometimes obsolete, inner slender, crenulate, blackish. Median shade, broad, blackish, diffuse, crossing the middle of the wing and only a little curved outwardly. Subterminal line irregular, marked by a blackish subterminal shade which varies in distinctness, and is in one case altogether absent, the line itself being also lost in consequence. A black-



ish terminal line, tending to become lunulate, followed by a yellow line at base of fringes. The ordinary spots are practically obsolete, though the reniform may be traced by a vaguely paler shading and an equally vague, darker lunate mark. Secondaries smoky, a little paler at base, veins and a discal lunule smoky. Beneath gray to smoky, powdery, with or without a discal spot and outer line.

Expanse, 33 to 37 mm. = 1.32 to 1.48 inches.

*Habitat*.—Denver, Colorado, October 9; Salida, July 10 (Osler); Fort Collins, Colorado (Gillette); Colorado (Bruce).

Four specimens, all females and no two alike. It is indeed with some hesitation that I have associated them all under one name, but all agree in the practical absence of the ordinary spots, the dominant median shade, and the generally sordid, obscure coloring. The difference lies in the range between a distinct blackish shade defining the subterminal line, and its entire absence, the former being the type of the species. The shading of the secondaries in one specimen is distinctly darker. It will require a series containing males to settle the matter fully.

*Type*.—Cat. No. 4808, U.S.N.M.

### 39. CARNEADES NOCTUIFORMIS, new species.

Ground color a pale mouse gray, powdered with brown and blackish scales. Head with a broad brown transverse line. Collar inferiorly brown, surmounted by a black middle line, upper portion of the ground color. Thoracic vestiture mixed scales and flattened hair, patagia a little relieved, tuftings evident though not prominent. Basal line geminate, brown, outwardly margined by a brown shading in the submedian interspace. Transverse anterior line geminate, lines almost equally well defined, inwardly bent from costa to median vein and touching the orbicular, outcurved in the submedian interspace and with a long outcurve below vein 1 so that the margin is reached very close to its middle. Transverse posterior line not very well defined, geminate on the costa, but beyond that not well marked, even, outcurved over the cell, very close to the reniform and a little drawn in below. Subterminal line pale, irregular, not well marked, defined by a darkening of the terminal space which leaves the apex free, and by a dusky preceding shade which is best marked on the costa. A narrow, black, terminal line, followed by a yellow line at the base of the fringes. Median shade darkens the cell between the ordinary spots, then runs parallel with and rather close to the transverse posterior line, the space between becoming brown shaded and darker than the rest of the wing. Claviform evident, brown ringed, concolorous, moderate in size. Orbicular large, irregularly oval, oblique, open to the costa, outlined by black scales, annulate by a slightly paler ring, the center concolorous. Reniform large, broad, kidney-shaped, extending well below the median vein, black ringed, annulate by paler scales, center brown, with a yellowish median line.

The cell as a whole is dusky around the ordinary spots. Secondaries smoky, with a yellowish tinge, darker outwardly, discal lunule present, fringes whitish. Beneath gray, powdery, discal lunule and outer line indicated on primaries only.

Expanse, 35 to 36 mm. = 1.40 to 1.44 inches.

*Habitat*.—Siskiyou, California, September 11 (Henry Edwards); east Washington (Piper).

Two males. The type was received from Mr. Edwards several years ago and is in fair condition; the second example, from Washington, is rubbed and imperfect. It is darker throughout, the reniform has the inner margin drawn in so as to constrict it centrally and give it a flask shape, and the median shade line is not well marked. Otherwise I see no essential differences, and the examples agree in somewhat unusually long antennae and in the shape of the primaries, which recalls *Noctua* rather than the more typical *Carneades*.

40. CARNEADES INTRUSA, new species.

In Bulletin No. 38, U. S. National Museum,<sup>1</sup> I called attention to what I then considered a variety of *tessellata*, and for which the term *intrusa* was suggested. With the material now at hand I have no hesitation in declaring the form entitled to specific rank. It resembles *tessellata* in general scheme of ornamentation, but the transverse anterior line is more upright, and the transverse posterior more evenly oblique below the middle of the cell. It is irregularly white powdered, and in each specimen the powdering is more prominent in a different space. In one it brightens the subterminal space, in another the costal region, in a third the basal space, and in the fourth the lower half of the median space. The powderings are coarse and not very close. The ordinary spots are more or less filled with these coarse white scales, and the reniform is outwardly shaded with yellow.

Expanse, 30 to 33 mm. = 1.20 to 1.33 inches.

*Habitat*.—Sierra Nevada, California.

Specimens labeled as above are in the U. S. National Museum collection, the Edwards collection, and the Rutgers College collection.

*Type*.—Cat. No. 4717, U.S.N.M.

41. CARNEADES NEOTELIS, new species.

Ground color red-brown, more or less shaded with ash-gray. Head with a black or brown line across the middle of the front. Antennae with a discolored-red, yellow, or gray tuft at base. Collar with a deep-brown median line, gray margined above, tending to become diffuse inferiorly; the base of the primaries usually marked by a discolored yellow or gray tuft. Thoracic vestiture mixed scales and flattened hair, patagia evident, tuftings distinct and tending to become discolored.

Primaries very uniform in general tint, no strong contrasts, markings all present, but tending to become broken. Basal line geminate, black, with yellow included scales, broken in the cell. Transverse anterior line geminate, brown or black, outwardly oblique and outcurved in the interspaces; outer portion distinct, inner portion much less marked, included space gray. Transverse posterior line geminate, blackish or brown, evenly curved over cell and a little drawn in below; outer portion even, tending to become lost, inner more or less evidently lunulate and not prominent. Subterminal line yellowish, irregular, broken, sometimes consisting of scattered yellow scales only, usually marked by preceding darker or blackish spots tending to unite, and by a preceding shade on costa. The terminal space, save at apex, is a trifle darker. A black terminal line, tending to become lunulate, is followed by a narrow yellow line at the base of the fringes. A feebly marked median shade is evident in most specimens, outwardly oblique between the ordinary spots and a little irregular, but close to and parallel with transverse posterior line below that point. Cell between the ordinary spots a little darker. Orbicular large, gray, oval, oblique, outlined by black scales. Reniform large, broad, upright, kidney-shaped, extending below the cell, outlined by black and annulate by pale scales, invaded by a yellow shade at the middle of the outer margin, else a trifle darker than the ground, a leaden shade becoming marked inferiorly. Claviform small or moderate, incompletely outlined, never prominent. Secondaries, smoky white in the male; darker, with a yellow shade in the female; darkening outwardly, veins and a narrow discal lunule also darker. Fringe whitish, with a yellow line at base and a smoky interline. Beneath, ranging from dirty white to smoky gray, powdery, discal spot and outer dusky line more or less obvious or complete on all wings.

Expanse, 36 mm. = 1.44 inches.

*Habitat*.—Pullman, Washington, July (Piper); Colorado (Bruce).

Two males and two females, remarkably similar in size and not much different in other respects. There is a little variation in the shade of brown and a little in the shade of the ornamental lines, but otherwise nothing. The species is perhaps near to *insulsa*, but lacks the strong contrasts and prominent claviform. It has the reniform of *tessellata* and becomes confusing by the presence of a fairly obvious median shade, combining thus the characters of two series.

*Type*.—Cat. No. 4796, U.S.N.M.

#### 42. CARNEADES ATROFUSCA, new species.

Ground color mouse gray, varying to brown, always even. Head and thorax concolorous, vestiture an admixture of flattened hair and scales, the tuftings evident on well-preserved specimens. Collar with a rusty transverse shading, which is sometimes relieved by black scales, forming an apparent black line. Where this shade reaches the base of

primaries, it forms a tuft of yellow scales, most obvious in the male and not always present. Primaries with the median lines obscured and no strong contrasts. Basal line geminate, sometimes marked on the costa only, but often complete and relieved by yellow, included scales. Transverse anterior line geminate, usually traceable by black or smoky scales across the wing; in course a little outwardly oblique, and slightly out-curved in the interspaces. Transverse posterior line geminate, traceable with difficulty in some examples, obsolete in others. Subterminal line pale, irregular, always broken, usually only scattered yellow scales, which are often altogether absent. Sometimes the yellow scales are emphasized by preceding black atoms, and in one case the line is marked by a somewhat deeper preceding shade. Terminal line narrow, black, relieving a yellow line at the base of the fringes. Claviform small, traceable in all the specimens, not complete in any. Orbicular large, oval, irregular, oblique, concolorous, more or less completely outlined by black scales, within which, in some specimens, yellow scales tend to bring it into relief. Reniform large, kidney shaped, extending below the cell, more or less imperfectly outlined by black scales, and usually better defined by an inner ring of yellow or whitish scales, which may invade the spot centrally. Usually the center is concolorous, but it may be slightly darker. Secondaries dirty yellowish white, outwardly smoky, the female more yellowish, with a broader soiled margin, discal lunule evident, fringes white, with a yellow line at base and a smoky line beyond this. Beneath gray, powdery, with the usual tendency to an outer line and a discal spot on all wings.

Expanse, 32 to 35 mm. = 1.28 to 1.40 inches.

*Habitat*.—Glenwood Springs, Colorado, August, September, October (Barnes); Colorado (Bruce); Pullman, Washington, July (Piper).

Six males and four females are at hand. They vary from a mouse gray to a red brown in ground color, and from almost immaculate to a type in which all the markings can be traced by darker or paler scales. The best-marked specimen resembles a normal *tessellata* without the black, and in fact this species resembles the common form when all its characteristic markings have been washed out. It is perhaps even closer to *satis*, which is larger, better marked, has a black line across the collar, and a broken, black, longitudinal line at base.

*Type*.—Cat. No. 4798, U.S.N.M.

#### 43. CARNEADES OBJURGATA, new species.

Ground color red brown, more or less overlaid by violet scales, less marked in the male, which tends to rusty shadings. Head violet in the female, often rusty in the male, palpi dusky at the sides. Collar with a brown or blackish median line, which is margined above by violet scales, inferiorly a little paler or even rusty yellow, in which case there is a patch of rusty scales at the base of the primaries. Primaries with all the markings present, the surface powdery and mottled with black,

gray, brown, and yellow scales. Basal line geminate, black, both portions equally distinct, usually pale filled, outwardly angulated on the median vein, beneath which a line of black scales may connect this angulation with the transverse anterior line. Transverse anterior line geminate, diffuse on the costa, outer part broad, black; inner narrower and blackish; included line always paler and sometimes yellowish; in course outwardly oblique, with outcurves in the interspaces. Transverse posterior line geminate, inner blackish, lunulate rather than crenulate, the outer smoky, even; its course is a rectangular bend over the cell, and then parallel with the outer margin or a little incurved to the inner margin. Subterminal line always evident, pale, sometimes punctiform, usually marked by the darker terminal space, and sometimes by a preceding broken or continuous shade as well, forming a small **W** on veins 3 and 4 when best marked. Median shade quite distinct, oblique between the ordinary spots, then rather close to and parallel with the transverse posterior line to the margin. Claviform moderate or small, concolorous, often incomplete, but always at least partly outlined in black. Orbicular moderate or large, oblique, oval or irregular, more or less completely black ringed, annulate with violet or yellowish, the center paler than the ground, so that the spot is relieved without being really contrasting. Orbicular large, kidney-shaped, extending well below the median vein, laterally outlined by black scales, incomplete above and below. An annulus of yellow or violet scales lies within the black margin, and these scales encroach from the concave outer border and sometimes nearly divide the spot. The center is of the ground color, but darkens inferiorly, and it may be relieved by a pale central lunule. There is a series of black terminal lunules, and a pale line at the base of the fringes. Secondaries soiled whitish, with a smoky outer margin, broader and darker in the female, the yellowish tinge very faint, yet perceptible. Beneath gray, powdery, with the usual outer line and discal spots all more or less evident. Thoracic vestiture an admixture of scales and flattened hair, patagiae relieved, tuftings well marked.

Expanse, 32 to 36 mm. = 1.28 to 1.44 inches.

*Habitat*.—Pullman, Washington, July and August (Piper); Dakota.

Size and general habitus of *tessellata* without the black filling, and much mottled and powdered; more like *friabilis*, but smaller and somewhat shorter winged, not so evenly gray. The male seems to resemble *tessellata* most nearly in habitus, whereas the female tends rather to *messoria* in the better-defined median shade. Ten specimens, equally divided as to sex, are under examination.

*Type*.—Cat. No. 4804, U.S.N.M.

#### 44. CARNEADES CARIOSUS, new species.

Ground color rather dull, smoky brown, shading to gray. Head a little paler inferiorly, palpi dusky at the sides. Collar paler below, a more

or less obvious blackish line above the middle; the point where the base of the primary joins the thorax marked by yellow scales. The anterior divided crest and posterior tufting evident. Primaries a little powdery, markings all present, but diffuse and not clearly written. Basal line geminate, black, inner complete, bent on the median vein and running in on the submedian so as almost to reach the base. Transverse anterior line geminate, outer portion black, distinct, inner smoky, scarcely evident, both portions broken in the costal space. As a whole the line is a little oblique outwardly, and is outcurved in the interspaces. Transverse posterior line geminate, inner part black and lunulate, outer smoky and even. As a whole the line is well removed outwardly, leaving a wide median space; is very slightly outcurved over the cell and is almost evenly oblique or a very little incurved below. Subterminal line pale, irregular, marked chiefly by a preceding dusky shade in the subterminal space, and by the slightly darker terminal space below the apex. There is also a somewhat dusky, undefined, preceding shade, which may be broken into irregular blotches; but is never contrasting. Terminal line narrow, black, broken, the base of the fringes a little yellowish. Median shade quite well defined, smoky, darkening the cell somewhat between the ordinary spots, and running parallel to and well removed from transverse posterior line below the reniform. Claviform concolorous, moderate in size, narrow, incompletely black margined. Orbicular of good size, oblique, irregular, oblong rather than oval, black ringed except on costal vein, a white inner annulus relieving the concolorous center. Reniform large, kidney-shaped, extending below the median vein, outlined by black scales except above and below, better defined by a whitish annulus, which is somewhat emphasized by yellowish scales exteriorly; center dusky, with a powdering of yellow scales toward the middle. Secondaries pale, smoky yellowish, more whitish toward the base, fringes white tipped, yellowish at base, smoky interlined, cell closed by a smoky lunule. Beneath whitish, with black powderings, a more or less evident common outer line and a discal lunule.

Expanse, 32 to 34 mm. = 1.28 to 1.36 inches.

*Habitat*.—Pullman, Washington, July 18 to 24 (Piper).

Two males and one female; the latter the largest and with a grayish shading. The species is somewhat stumpy winged in appearance, and resembles what I have determined as *friabilis*, save that it is smaller and not ash gray in ground color.

*Type*.—Cat. No. 4801, U.S.N.M.

#### 45. CARNEADES MALIS, new species.

Ground color a bright bluish gray, through which a faint reddish shade is noticed in the center of primaries. Head brown. Thoracic vestiture mostly flattened hair, tuftings feebly indicated, patagia not marked. Primaries with the maculation generally obscured, except for

the contrasting black filling of the cell about the ordinary spots. Basal line black, geminate, distinct. Transverse anterior line marked by geminate brown costal spots; below this it is single, slender, brown, scarcely contrasting, outwardly oblique and outcurved in the interspaces. Transverse posterior line marked by geminate brown spots on the costa, else obsolete. Subterminal line marked by a preceding costal shade and by the slightly dusky terminal space, the apex being clear. A slender brown terminal line is followed by a yellowish line at the base of the fringes. Claviform wanting. Orbicular large, oblique, incomplete above, annulate with pale, else concolorous. Reniform large, kidney-shaped, extending well below the cell and seemingly much too large for the insect; not outlined except by the black filling of the cell and the blackish filling of the spot which defines it against the ground color. Secondaries white, veins yellowish, marginal line smoky. Beneath, primaries gray, secondaries white, both powdery with a discal spot and with a punctiform outer line.

Expanse, 29 mm. = 1.16 inches.

*Habitat*.—Brandon, Manitoba, October 27, 1898 (Hanham).

A single male only, under No. 426, of this pretty little species which recalls the Texas *Noctua pellucidalis*. In *Carneades* its nearest ally is *albipennis* Grote.

#### 46. CARNEADES PINDAR, new species.

Ground color an even brownish gray. Head somewhat paler, more fawn gray, palpi blackish at sides. Collar fawn gray inferiorly, brownish above, with a contrasting black line between the shades. Thoracic vestiture mostly flattened hair, patagia hardly relieved, tuftings indistinct, no markings. Primaries with the costal region a little paler, terminal space smoky brown, cell before and between the ordinary spots black or blackish, basal space with a black streak below the median vein, becoming diffuse outwardly, else very smooth, not at all powdery. Basal line marked by geminate smoky dots on costa and by a pale shade interrupting the basal streak below the cell. Transverse anterior line geminate, very feebly defined, almost upright to vein 1, below which it makes a long outcurve. Transverse posterior line geminate, very slightly darker, inner portion lunulate, outer even, as a whole almost parallel with the outer margin. Subterminal line concolorous, marked by the dark terminal space, which leaves the apex pale, and a preceding shade which is best marked on the costa and then breaks up into black or blackish sagittate interspaceal marks. A series of small, black, terminal lunules, from which blackish rays are sent inward to oppose the sagittate preceding marks. Claviform of good size, concolorous, narrowly black-ringed. Orbicular oblong, oblique, large in size, open to the costa, else black-ringed, concolorous. Reniform of good size, kidney-shaped, black-ringed, concolorous. Secondaries whitish with a faint luteous tinge, outer margin narrowly smoky, the border becoming

diffuse inwardly. Beneath whitish, powdery, both wings with a smoky discal spot.

Expanse, 34 to 36 mm. = 1.36 to 1.44 inches.

*Habitat*.—Bluff, Utah (Mrs. H. M. Peabody).

Two males from the U. S. National Museum, in not the best of condition. The species is allied to *obeliscoides* in type of maculation, but has no contrasts and does have a well marked subterminal line preceded by sagittate black marks. From the protean forms of *perexcellentis* I believe it to be safely distinguished by the form of the ordinary spots and their uniformity with the ground color.

*Type*.—Cat. No. 4789, U.S.N.M.

47. CARNEADES HENRIETTA, new species.

Ground color red brown, more or less evidently overlaid by gray scales. Head variable, but usually of the color of the inferior portion of collar. Collar with a distinct, black, median transverse line, above which is the ground color of the wing and below which the color is usually contrasting gray, yellow, or brown; but it may be concolorous with the ground. Primaries may be entirely uniform in color or the costal region may be contrastingly yellowish or rusty luteous to the transverse posterior line. All the lines incomplete and sometimes barely traceable. Basal line usually marked by geminate dusky spots on the costa, and by black spots in the submedian interspace; a black longitudinal mark extending from this point to the transverse anterior line. Transverse anterior line geminate, outwardly oblique and well outcurved in the interspaces, so that it reaches the inner margin not much within its middle, interrupted in the costal region. The inner part of line is scarcely defined, the outer is black, included space usually a little paler. Transverse posterior line geminate on the costa, thence single, fine, crenulated, rarely complete, sometimes marked only by the contrast between subterminal and median spaces, sometimes scarcely more than indicated. Subterminal line pale, slender, more or less broken, a little toothed on veins 4 and 5, sometimes marked by the darker terminal space, sometimes by a few preceding scales, and sometimes not at all. A series of interspaceal terminal points, sending brown rays across the terminal space which, when darker, leaves the apex pale. Subterminal space usually a little paler and sometimes obviously contrasting. Veins dusky. Median cell more or less black powdered before and between the ordinary spots. Claviform variable in size, outlined in black, sending from its tip a narrow black line through the submedian interspace and above this a paler ray to the transverse posterior line. Orbicular oval, moderate or large, incomplete above, else black ringed, inwardly relieved by a pale annulus, the center concolorous or paler. Reniform large, kidney-shaped, oblique, black ringed, annulate with yellowish, the center a mixture of yellowish and blackish scales in varying proportions. Secondaries whitish, with a



faint yellowish tinge in the male, more smoky in the female, with a dusky outer line, from which a very narrow shade may or may not extend irregularly inward. Discal lunule faintly marked. Beneath gray, powdery, secondaries more whitish, all wings with an incomplete outer line and a discal spot.

Expanse, 30 to 34 mm.=1.20 to 1.36 inches.

*Habitat.*—Alameda County, California, September (U.S.N.M.); Santa Cruz Mountains (Ehrhorn); Senator, Arizona, June 25 (Dr. Barnes).

Five males and two females, no two alike. This species has approximately the same range of variation as *perexcellens* Grote=*infelix* Smith, but it is decidedly smaller, the wings are broader, more stumpy, there are no sagittate spots preceding the subterminal line in the contrasting individuals, and, altogether, the species differs so obviously in habitus that there seems little danger of confusion.

*Type.*—Cat. No. 4806, U.S.N.M.

[*Larva.*—Head bilobed, broad, clypeus broadly triangular, rather high, the paraclypeal pieces nearly attaining the vertex; pale brown, speckled with darker over the sides and at the top of each lobe; labrum pale, jaws dark at tip, ocelli in a brown patch; width, 3.5 mm. Body somewhat flattened, robust, feet normal, but all small and short; tubercle iv of joints 9 and 10 at the upper corner of the spiracle. Thin skinned, translucent whitish, the dorsum faintly shaded with reddish. Cervical shield distinct, brown, with brown impressed strigæ, cut by three white bands; anal plate obscure, brown dotted. Spiracles black. Tubercles moderately large, brown, obscure. No marks in the blown example.

“On roots of various plants” (Kæbele, No. 94).—*Harrison G. Dyar.*]

#### 48. CARNEADES VANIDICUS, new species.

Ground color luteous with a slight reddish tinge, in the female so heavily shaded with gray as to seem smoky or ashen. Head of the palest ground color, the tip of the frontal vestiture sometimes a little darker. Collar with a rather narrow black median transverse line, below which it is paler and, usually, contrastingly discolored. Thoracic vestiture mixed scales and flattened hair, patagia relieved, dorsal crest and tuftings distinct, and in the male a little discolored. Primaries with the costal region pale, discolored, gray (female) to yellow (male), a pale streak through the submedian interspace and another from the middle of the reniform outward and curved upward to the apex. Basal line marked only by the pale included space below the median vein, where it breaks the longitudinal black shading, which extends to the transverse anterior line. Transverse anterior line geminate, marked by smoky spots on the costa and by an obliquely outward curve in the submedian interspace. Transverse posterior line practically obsolete in most cases or only marked opposite the cell by the somewhat darker median space, in one female traceable for its full course, and there a little incurved. Veins

more or less marked by dusky scales, the median also accompanied by a series of pale scales. Subterminal line pale, defined by the uniformly dusky terminal space and by a series of variably evident sagittate black spots or dashes. A series of brown or blackish lunules, beyond which the fringes are pale, with a narrow, dusky, interline. Claviform distinct, pointed, usually reaching the center of the wing in the female, a little shorter in the male, and sending off a slender black line from its tip through the submedian interspace. Orbicular oblique, oval or oblong, moderate in size, usually incomplete above, defined by a narrow black ring, within which is a paler annulus, the center of the ground color or paler. Reniform large, kidney-shaped, scarcely extending below the median vein, black ringed, annulate with pale, with a dusky center, which may be encroached upon by pale scales; there is a tendency to a little backward spur along the median vein from the lower margin of the spot. Cell, except for the ordinary spots, filled with smoky or black. Secondaries whitish in the male, with a narrow, smoky, outer border; smoky gray and almost uniform in the female; fringes white in both cases. Beneath whitish, powdery, disk of primaries smoky and with a distinct discal spot and incomplete outer line. Secondaries paler, with a small discal spot only.

Expanse, 31 to 35 mm. = 1.24 to 1.40 inches.

*Habitat*.—Phoenix, Arizona, November 4 to 11 (Griffith); Pullman, Washington, September 27 (Piper).

Seven specimens, of which half are male and half are female, one example being the most complete possible example of a union of both sexes. The left side from the median line of the body is completely male, the right side is as completely female. Ovipositor and claspers are both present and the differences in antennal structure is marked. The two pairs of wings afford a perfect illustration of the sexual color differences and make it certain that the two are correctly associated.

So far as the material indicates, the variation is mostly sexual, the male being in all respects the brighter, with greater contrasts and a predominating yellow shade. The female is more uniformly gray, and the contrasts are not nearly so great, the costal region seeming whitish rather than yellow.

The species is allied to *perexcellens*; but is smaller, with differently shaped ordinary spots and much whiter secondaries. From *henrietta* it is distinguished by more pointed primaries, much stronger color contrasts, the sagittate spots before the subterminal line, and the form of the ordinary spots.

*Type*.—Cat. No. 4807, U.S.N.M.

49. CARNEADES FÆMINALIS, new species.

Ground color ashen gray, shaded with smoky or blackish. Head gray inferiorly, vertex smoky brown. Collar with a broad, black median band which is tipped with gray and below which there is a reddish

tinge. Thoracic vestiture mostly flattened hair, patagia marked and edged with gray scales, tuftings obvious. Primaries with costal region contrastingly gray or whitish, this shade invading the orbicular and, to some degree, the reniform as well as, occasionally, the inner margin. Basal line marked by a smoky costal spot only. Transverse anterior line geminate, marked on the costa, obsolete through the cell, then very obliquely outcurved in the interspaces; outer portion blackish; evident, inner smoky, obscure, defined chiefly by the somewhat paler included space. A black or blackish shade defines the pale costal space from the base to the transverse anterior line and this shade continues so as to fill the cell around the ordinary spots and the median space above vein 2. Transverse posterior line geminate on the costa, thence single, very slightly crenulate, broadly curved over the cell, well incurved below. Subterminal line gray or whitish, irregular, broken, terminal space darker except at apex, preceded by a dusky subterminal shade, which is best marked on the costa and tends to break up into somewhat triangular spots. There is a faint, terminal, blackish line. Claviform moderate, black ringed, sometimes concolorous, sometimes gray, and sometimes the margins almost join to make it solidly black. Orbicular narrow, oblique, oblong rather than oval, varying in size, gray-filled. Reniform moderate in size, kidney-shaped, not extending below the median vein, black margined, then annulate with white, the center concolorous and variably gray powdered. Secondaries white with a smoky tinge in the male, darker and with a more yellowish shade in the female; fringes white, veins and a discal lunule dusky.

Expanse, 31 to 37 mm.—1.24 to 1.48 inches.

*Habitat*.—Garfield County, Colorado, 6,000 feet (Bruce).

Two males and two females; one of the latter apparently a little dwarfed and crippled, which accounts for the range of size variation; the other examples are 35, 36, and 37 mm., respectively. The species is allied to *furtivus* or *idahoensis*, but has none of the red or brown shading, and the transverse posterior line is complete. Aside from this the form of the ordinary spots differs, and this new species has the markings much more obvious and is less even in appearance.

*Type*.—Cat. No. 4784, U.S.N.M.

#### 50. CARNEADES NORDICA, new species.

Ground color smoky brown, with a more or less obvious red shading, the female with a gray shading over all. Head with a dusky frontal line across the middle. Collar with a distinct black median line, which is tipped with gray; in the male a reddish or rusty shade predominates below this line and leaves a rusty patch at the base of the primaries; in the female a gray shade replaces the red. Thoracic vestiture mixed, patagia defined, tuftings distinct and a little gray tipped. Primaries with the costal region gray to the transverse posterior line, this shade invading the orbicular and to some extent the subterminal space. The

cell is black filled around the ordinary spots, and a blackish shading is in the basal space below the median vein, shading to the ground color inferiorly, sharply limited above. Basal line marked by geminate black spots on the costa, and by a gray line interrupting the black below the median vein. Transverse anterior line geminate, interrupted by the pale costal shade, outwardly oblique and outcurved in the interspaces below that point. Transverse posterior line geminate, the inner line crenulate, outer even and not so well marked; as a whole, evenly curved over the cell and a little drawn in below. Subterminal line pale, irregular, a little dentate on veins 3 and 4, defined by the dusky terminal space which leaves the apex of the ground color, and a dusky preceding shade which is best marked on the costa and is more or less broken into undefined spots elsewhere in its course. A broken blackish terminal line, followed by a yellow line at the base of the fringes. Claviform black ringed, variable in size, though never very large; a fine black line from its tip through the submedian interspace and a slightly paler shading above it. Orbicular oblique, oval or oblong, open to the costa superiorly in the female, incompletely closed in the male. Reniform upright, kidney-shaped, of good size, hardly extending below the cell, defined by a gray annulus and the center more or less gray powdered. The median vein is gray to the reniform, and a powdering of gray scales is variably evident along the inner margin. Secondaries smoky, more yellowish at the base, darker in the female, fringes whitish. Beneath, primaries smoky, secondaries gray, powdery; all with an incomplete outer line and a discal lunule, the latter usually obsolete on the primaries and sometimes so on the secondaries.

Expanse, 35 to 38 mm.=1.40 to 1.52 inches.

*Habitat*.—Calgary, Canada, July 16, 19, August 3 (Dod); Olds, British Columbia (Fletcher).

Two males and two females. Is an ally of *divergens* and has the pale median vein; but the ordinary spots are not outlined in pale and are different in shape, opening on the pallid costa. This is also a much grayer species and the contrast are more sharply marked. It has a little the appearance of *furtivus*, but the powdery markings and complete median lines easily distinguish it.

*Type*.—Cat. No. 4786, U.S.N.M.

51. CARNEADES FACTORIS, new species.

Ground color fawn gray, more or less brown shaded. Collar with a transverse black median band which is diffuse inferiorly, and tends to darken the lower portion centrally. Thoracic vestiture mixed scales and flattened hair, patagia fairly defined, tuftings obscure. Primaries with all the markings somewhat broken, median space a little darker red brown, costa a little more shaded with gray, cell yet darker or blackish before and between the ordinary spots. Basal line geminate, marked by black spots on the costa and by the paler included shade

which cuts the black or brown basal shade. This black or brown shade extends below the median vein from base to transverse anterior line and is diffuse inferiorly. Transverse anterior line geminate, outer portion black, lost in the costal region; inner brown, not much contrasting, included space gray; in course it makes an inward bend from costa to median vein, then outcurved to vein 1, below which it has another, longer, outcurve. Transverse posterior line geminate, outer line even, hardly darker, tending to become lost, the inner lunulate, black or brown, included space a little brighter red, as a whole quite evenly outcurved over the cell and a little drawn in below. Subterminal line narrow, yellowish, more or less broken, only a little irregular in course, defined by the paler apical space and marked by small, irregular and somewhat diffuse brown spots. Terminal line very narrow, brown, followed by a yellow line at the base of the fringes. Claviform rather short and broad, black ringed, usually a little incomplete, tending to become brown filled. Median vein gray marked. Orbicular irregular, oblong, oblique, open superiorly, but not merged into the costal shade; narrowly annulate in pale gray, as a whole lighter than ground. Reniform moderate, rather narrow, irregularly kidney-shaped, scarcely extending below the cell, defined by black scales within which is an imperfect ring of pale scales; evenly filled with lighter gray. Secondaries an even, smoky yellowish, veins and discal lunule darker, fringes pale, with a yellow line at base. Beneath, ranging from whitish to smoky gray, powdery, with or without discal spots and outer lines on all wings; no two specimens being alike.

Expanse, 33 to 40 mm. = 1.32 to 1.60 inches.

*Habitat*.—Glenwood Springs, Colorado, June, July, and August (Dr. Barnes).

Five females in fair condition only. The range of variation is chiefly in size and in the amount of contrast between the ground color and the dark shadings in the median space and cell.

The species is allied to *divergens* but is more even in color, with less contrast on the median vein and pale rings surrounding the ordinary spots, and with quite different transverse anterior line and orbicular.

*Type*.—Cat. No. 4795, U.S.N.M.

#### 52. CARNEADES CÆSIUS, new species.

Ground color reddish brown, washed with blue gray. Head rich red-brown, verging to carmine. Collar blue gray, with a carmine transverse line above the middle. Thorax very robust, mixed thin and flattened hair, patagia well marked and brown, tuftings prominent, blue gray. Primaries mostly blue gray. The inferior half of basal space, the claviform, and the filling of the ordinary spots is brown. The terminal space save apex and the subterminal shading are smoky. Basal line indicated only below the cell, where it cuts the black shade which extends to transverse anterior line, but is not prominent. Trans-

verse anterior line marked as a gray line through the submedian interspace only. Transverse posterior line marked on the costa and traceable over the cell by the contrasts between the brown and gray, lost below that point. Subterminal line distinct, gray, marked by a preceding smoky costal shade, and thereafter by the smoky terminal space and a preceding, continuous, smoky shade. A narrow, lunulate, black terminal line, followed by a yellow line at base of fringes. Claviform very large and broad, reaching to the middle of the wing. Orbicular round, of good size, broadly ringed with blue gray. Reniform large, broad, kidney-shaped, broadly ringed with gray. The median vein is prominently gray. Before the orbicular is a triangular black spot, and the space between the ordinary spots is black. Secondaries dirty yellowish at base, becoming smoky outwardly, veins and a discal lunule smoky. Fringes yellow at base, smoky at middle, white at tips, disc with a discal spot and a subterminal dusky line. Secondaries with a dusky lunule and a dusky costal and outer border.

Expanse, 34 mm. = 1.36 inches.

*Habitat.*—Middle California (Dr. Barnes).

A single female of this bright little species. The body is unusually robust and the wings are in consequence actually and proportionally small or "stumpy." It should be associated with *redimicula*, where it will be easily separated from the described species.

53. CARNEADES ACUTIFRONS, new species.

Ground color dark red brown, shaded with black and pale gray. Head brown with a black transverse line, the frontal protuberance being more acute than usual in the genus. Collar with a black central line, below which it is very pale gray, tinted with yellowish, and above which it may be reddish or of the ground color. Thoracic vestiture with long flattened hair and scales intermixed, tuftings distinct and a little reddish anteriorly, patagia defined, disk blackish, margin indicated by reddish scales. Primaries well marked with strong contrasts; costal region gray or whitish to the transverse posterior line, apex paler, cell, except for the pale ordinary spots, black filled. Basal line geminate, black, marked on the costa and again in the submedian interspace where the whitish included shade cuts the black shade which extends to the transverse anterior line. Transverse anterior line geminate, black, broken, inner line not well marked, included space pale, outwardly oblique, and outcurved in the interspaces. Transverse posterior line geminate on the costa, inner line slender, black, a little lunulate, tending to become lost, squarely exerted over the reniform, very oblique and a little incurved below. Subterminal line slender, whitish outwardly, dentate on veins 3 and 4, preceded by a dusky shading, partly broken into black dots or spots, and by a broader costal shading. Terminal space save apex darker. A slender black terminal line, followed by a pale line at the base of the fringes. Claviform prominent,

moderate or large, so broadly outlined in black that it is almost black filled. Orbicular ovate, irregular, oblique, small, outlined in black filled with whitish or gray scales which may be brown centered. Reniform large, kidney-shaped, extending well below the cell, more or less discolored by white, gray, or yellow scales. As a whole the lower half of the wing is the lighter and it may be quite contrastingly gray. The subterminal space is on the whole a little lighter than either median or terminal spaces. Secondaries pale, soiled yellowish at base, darker, smoky, outwardly, veins and a narrow discal lunule also smoky. Beneath smoky, powdery, with common discal spot and outer band.

Expanse, 33 mm.=1.32 inches.

*Habitat*.—California; Oregon.

One male and one female for which I have no more definitive locality than above given. The specimens are old, but in good condition.

The species stands by itself by the unusually narrow primaries and very oblique outer margin. Though of almost average expanse it seems like a very small species and indeed is the smallest of those with contrasting costa, discolored spots, and basal black markings.

*Type*.—Cat. No. 4794, U.S.N.M.

#### 54. CARNEADES SELENIS, new species.

Ashen gray over a somewhat luteous base. Head and collar inferiorly with a luteous shade. Collar with a distinct black line at middle, above which it is gray. Thoracic vestiture mixed scales and hair, tuftings evident, patagia marked and with a narrow, black submargin. Primaries with the median lines not relieved, barely traceable; terminal space and a prominent shade preceding subterminal line smoky, blackish. Basal line geminate, barely traceable to the slender, black, basal line which is with difficulty traceable to the transverse anterior line. The latter is geminate, outwardly oblique and outcurved in the interspaces. Transverse posterior line evident on costa and through the abrupt outward bend over the cell; below that point it is just traceable as being parallel with the outer margin. Subterminal line very distinct, broad, yellowish, preceded by a blackish, smoky shade, which tends to break up into triangular spots. A series of small terminal lunules, beyond which there is a narrow pale line at base of fringes; a median dusky line, being narrowly cut with white. Median shade vaguely diffuse below the reniform. Claviform long, slender, a little paler, outlined in blackish scales which do not form a continuous line. Cell smoky before and between the ordinary spots. Orbicular small, oval, ringed with black scales, annulate with pale, center of the ground color. Reniform small, kidney shaped. Center and interior portion filled with blackish, elsewhere narrow black margined and with a yellowish annulus. Secondaries white, with a rather broad, smoky margin. Beneath whitish, powdery, primaries with a discal spot and the outer margin somewhat dusky, secondaries powdery along the costa only.

Expanse, 31 mm. = 1.25 inches.

*Habitat*.—Los Angeles County, California (Coquillett).

A single female, from the collection in the U. S. National Museum. It is an ally of *silens*, but much smaller, with small ordinary spots and very sharply marked subterminal line. It recalls *atrifera* in size and habitus, but is quite distinct.

55. CARNEADES LAMINIS, new species.

Ground color dull fuscous, primaries washed with ashen gray. Head brown. Collar with a rusty shade at base, reaching the insertion of the wings, margined above with a broad, black central line. Thoracic vestiture mostly flattened hairs, patagia and tuftings obvious. Primaries gray along the costal region halfway across subterminal space, the cell smoky, darker than any other part of the wing. A thread-like black line extends from base to the transverse anterior line, shaded a little with smoky. Basal line geminate, blackish, broken in the cell. Transverse anterior line geminate, smoky, obscure, outwardly oblique, outcurved in the interspaces, lost in the cell, and feebly marked below internal vein. Transverse posterior line geminate on the costa, single below the cell, fine, crenulate, sinuate, not relieved. Subterminal line gray, irregular, dentate on veins 3 and 4, defined by the dark terminal space except at apex, which is clear, and by a preceding shade which fills the subterminal space on costa and is broken and more or less punctiform below the middle of the cell. A series of small black terminal lunules, followed by a yellow line at base of fringes. No median line. Claviform barely indicated. Orbicular small, irregular, oblique, gray, centered with smoky, partly outlined by black scales. Reniform moderate, kidney-shaped, gray, powdered with smoky, inwardly defined by black scales, outwardly by the dusky space beyond it; above and below not defined. Secondaries dirty yellowish white, with a smoky outer border; veins and a narrow discal lunule, smoky. Fringes yellow at base, with a brown central line, white at tip.

Expanse, 34 mm. = 1.36 inches.

*Habitat*.—Middle California (Dr. Barnes).

A single male in good condition. The species resembles a small *tesselloides*, but is not nearly so well defined and has a dull smoky brown tinge not found in the older species. The ordinary spots are also different and the collar in *tesselloides* is bright ashen gray inferiorly, not rusty. Altogether this is a darker species and more sordid.

56. ANYTUS ATRISTRIGATUS, new species.

Ground color gray with a variable smoky tinge. Head with smoky frontal and interantennal lines. Collar black tipped. A blackish band from the eyes to the base of the primaries. Patagia margined with blackish. Primaries with all the markings defined, a peculiar and prominent feature being a black streak, which extends from base



to the outer margin through the submedian interspace, the line set in a blackish shading, which extends on each side and is diffuse at the edges. Basal line blackish, geminate, toothed on the veins. Transverse anterior line geminate, black, the two parts equally distinct, widely separated on costa, gradually becoming approximate toward inner margin. In course it is irregular, the long inner tooth on submedian vein being best marked. Transverse posterior line unusually near outer margin, leaving a very wide median space, geminate, outer line best defined, narrow, black, inner smoky, included space white, irregularly angulate and dentate, squarely exerted over the reniform, drawn in below, a prominent outward tooth in the submedian interspace. Subterminal line whitish, irregular, incomplete. A series of black terminal spots, forming the tips of sagittate blackish marks which cut the fringes. A blackish irregular bar fills the subterminal space opposite the cell. Median shade black on the costa, oblique through the reniform, becoming smoky, then irregular and close to the transverse posterior line. No obvious claviform. Orbicular round or oval, then annulate with whitish, center concolorous. Reniform large, broad, irregularly kidney-shaped, larger superiorly, ringed with black, filled with smoky or blackish. Secondaries almost white, with a smoky, punctiform, exterior line and a series of smoky terminal lunules. Beneath white, powdery, both wings with a more or less complete, sinuate, outer line and good-sized discal spot.

Expanse, 37 to 41 mm. = 1.48 to 1.64 inches.

*Habitat.*—Texas.

Two males and one female, the latter greasy and a little defective. The species is altogether different from the other described species, and the black-shaded streak through the submedian interspace of primaries will distinguish it at a glance.

*Type.*—Cat. No. 4812, U.S.N.M.

57. MAMESTRA SENATORIA, new species.

Ground color very deep purplish brown, overlaid and powdered with black scales, orbicular, reniform and terminal space more or less yellowish, contrasting. Head and thorax without obvious maculation. Primaries with the lines lost in the black powdering, marked on the costa by geminate black spots inclosing a yellowish mark, and by yellowish scales which represent the space included between the geminate lines. Basal line thus marked for its full course. Transverse anterior line apparently upright or nearly so. Transverse posterior line lunulate, apparently of the usual form, fairly evident over the cell. A vague, curved, diffuse, median shade. Subterminal line dull yellow, distinct, continuous, a little irregular, preceded by black blotches in the interspaces; that opposite hind angle being largest and most obvious. Terminal space mottled with yellow scales. Fringes long, feebly scalloped, cut and festooned with dull yellow and with a blackish

interline. Claviform small, concolorous, black ringed. Orbicular rather small, round or nearly so, black ringed, more or less yellow powdered. Reniform narrow, upright, a little constricted centrally, outlined in black, more or less completely yellow filled and contrasting. Secondaries smoky or blackish brown, paler, more yellowish at base, darkest in the female, fringes yellowish, with a brown interline.

Expanse, 31 to 33 mm. = 1.24 to 1.32 inches.

*Habitat*.—Senator, Arizona, April 24 (female), July 16 (male) (Dr. Barnes).

One pair in only fair condition, the male the larger and best marked, the female so dark and powdery that the contrasts in the male are the more striking. The antennæ in the male have the joints well marked and laterally tufted. The species thus belongs in division A,<sup>1</sup> of the genus, and its broad primaries ally it to *detracta*; but the apices in the new form are well marked, the outer margin is more oblique, and the wing as a whole is more triangular, resembling rather *obscura* and *quadrata*.

The under side is smoky, powdery, with a continuous, black, extra-median line, fringes yellowish, a yellowish discal lunule on primaries and a blackish spot on secondaries.

58. MAMESTRA RAINIERII, new species.

Ground color ash gray with a smoky tinge, head and collar concolorous. Thorax with black tipped scales darkening the disc, patagia with a black submargin. Primaries with all the maculation broken; the upper portion of basal space and the large ordinary spots are whitish gray, and contrast enough to form the most prominent ornamental features. Basal line black, geminate, upright. Transverse anterior line geminate, outer part black, inner smoky, included space whitish gray, broken, outwardly oblique, with small outcurves in the interspaces. Subterminal line geminate, the defining lines obscure, the included whitish space only being traceable across the wing, abruptly bent over the cell and a little incurved below; median space as a whole a little the darkest portion of the wing. Subterminal line made up of white scales, emphasized by a series of black spots in the interspaces, in course only a little irregular. A dusky median shade is marked on the costa. Claviform large, black ringed, powdered with white. Orbicular large, oval, incompletely black ringed, white powdered. Reniform very large, broad, kidney-shaped, outlined in black, white powdered. Secondaries uniformly dull smoky, very powdery. Beneath, uniformly smoky, roughly powdered, secondaries with a prominent black discal spot.

Expanse, 35 mm. = 1.40 inches.

*Habitat*.—Mount Rainier, Washington (C. V. Piper).

<sup>1</sup> Proc. U. S. Nat. Mus., XIV, 1891, p. 201.

This species, represented by a single, somewhat rubbed male, offers a number of characters that make its removal from *Mamestra* probable when better examples of both sexes are available. As it stands now it belongs next to *gnata*, because the antenna has the joints distinct and laterally with small tufts. The head is retracted though broad, front very flat, palpi small. Thorax quadrate, vestiture loose, divergent. Collar and patagia well marked, but dorsal tuftings obscure. Primaries abruptly widened at transverse anterior line, thence nearly parallel to the rounded hind angle, outer margin very oblique, making a long drawn out though rounded apex. The fringes are wanting in the specimen. This wing form is not paralleled elsewhere in the genus; but I have been unable to find any better place for it and prefer not to make a generic type of a defective specimen.

59. MAMESTRA BOLTERI, new species.

Ground color a dull, reddish luteous, shaded with smoky. Head yellow, with a smoky interantennal shade. Collar yellow at tip. Thoracic tuftings yellow tipped, disk of patagia smoky. Primaries without contrasts, the median lines diffuse, smoky and broken, the subterminal line pale and forming the most obvious feature in the maculation. Basal line smoky, marked chiefly by the included space, which is of the ground color and breaks the dusky shading in the upper half of the basal space. Transverse anterior line smoky, geminate, broken, diffuse, a little oblique outwardly and irregular in the interspaces. Transverse posterior line geminate, smoky, diffuse, broken, included space of the ground color, rather abruptly bent below the subcostal over cell and incurved below that point. Subterminal line pale, distinct, relieved and made prominent by continuous dusky shadings on each side, only a little irregular in course. A series of small, black, terminal lunules. Fringes long, yellowish at base, with a diffuse, dusky interline, reddish at tip. Median shade diffuse, darkening the space between the ordinary spots, then rather close to and parallel with the transverse posterior line. Claviform very small, vaguely outlined, relieved by a few yellow scales. Orbicular small, round, a little paler than ground color, and so defined by the contrast with the surrounding shade. Reniform moderate, upright, only a little constricted, outer and upper portion a little yellowish, inner and lower portion smoky. Secondaries uniformly smoky, with a yellowish, somewhat glistening shade, fringes long, yellow at base, more whitish at tip, with an intermediate smoky line. Beneath, primaries smoky, a little paler along costa, where an extra-median line is indicated, and on the fringes. Secondaries more reddish, powdery, with a small discal lunule and a somewhat diffuse, extra median line.

Expanse, 37 mm. = 1.48 inches.

*Habitat*.—Las Vegas, New Mexico (A. Bolter).

A single female, in excellent condition as to wings, but thorax com-

pressed and vestiture disarranged. This species is unlike any of the species heretofore described and is without close allies. It belongs to the *vindemialis* series on superficial characters, but has a closer resemblance to Agrotid forms like *Noctua pyrophiloides*, the normal markings of the *messoria* group of *Carneades* being combined with the diffuse shadings of the first-mentioned form.

60. MAMESTRA YAKIMA, new species.

Ground color ashen gray, powdery. Head darker, with a more or less obvious dusky interantennal line. Collar with a series of darker scales forming a vague median line. Patagia with a blackish submargin. Primaries with all the markings obscured, tending to but not really strigate, paler rays on veins 3, 4, 6, and 7 cutting into the darker terminal space. Claviform vaguely marked and extending to the middle of the wing. Orbicular round or oval, small or moderate, concolorous, marked by a slightly paler ring. Reniform large, broad, kidney-shaped, but larger inferiorly and there filled with leaden gray which makes it fairly obvious. A series of small black terminal lunules. Secondaries white, with a blackish outer border, which shades into the white well before the middle, veins blackish, fringes white. Beneath white, a little powdery toward the margins, primaries with a dusky discal lunule.

Expanse, 30 to 36 mm. = 1.20 to 1.44 inches.

*Habitat*.—Yakima, Washington (C. V. Piper).

One male and two females, in only fair condition. On very close examination the maculation seems to be of the *trifolii* type, though so nearly obsolete that this is difficult to recognize; at all events the denotations of the subterminal line refer it to that series. The male antennae are ciliate and the species is peculiar in having a little pointed frontal protuberance, so small as to be easily overlooked, yet actually existent. This, so far as I am aware, is unique in the genus.

*Type*.—Cat. No. 4836, U.S.N.M.

61. MAMESTRA DILATATA, new species.

Ground color white, overlaid by smoky, luteous, olivaceous, and black scales, so as to leave the white base visible only in the lines, ordinary spots, and basal space of primaries. Head yellow, with a gray interantennal tuft. Collar white, tipped with smoky, with a broad, black median line. Patagia white, margined with black, the disk mottled with white, black, and olivaceous scales. Primaries with basal space superiorly white, inferiorly gray. Basal line geminate, black, marked on the costa, the inner portion normal, the outer dislocated and forming an oblique blackish mark in the submedian interspace, separating the white and the gray shading. Transverse anterior line geminate, black, included space white, oblique to the submedian interspace, inwardly angulate on vein 1, outcurved below. Transverse posterior

line geminate, black, narrowly lunulate, included space white, its course irregular, outward bend over cell large, so that the line is well removed outwardly and the median space is wide. Subterminal line white, broken, irregular, marked by preceding black spots and following shades, obscured by the white mottling in the subterminal space and the gray apical region. Median shade indicated on the costa, lost in the dark space below until it reappears in the gray shade which extends along the entire inner margin. Fringes whitish, with a series of black lunules at base, and a series of olivaceous lunules at tip. Claviform small, black margined, white centered. Orbicular small, round, black ringed, white centered. Reniform moderate, upright, dilated superiorly, a little constricted in the center, lower half much narrower, black margined, white filled, with a central olivaceous shade. Secondaries smoky brown, a little paler at base, fringes white, a smoky interline extending from the apex half way to the anal angle. Beneath smoky, primaries powdery along the costa, fringes white, marked as on the upper side: secondaries whitish basally, a broad extra median shade line limiting the smoky outer margin; costa powdery, a discal spot smoky.

Expanse, 30 mm. = 1.20 inches.

*Habitat.*—New Mexico.

One female from the collection of the United States National Museum. This is one of the mottled species not easily describable, resembling *variolata* in general appearance and referable to the *adjuncta* group. It differs in the much darker shadings, in the form and course of the lines, and, most obviously, in the form of the reniform. In fact, on close comparison the resemblances to other species turn out to be casual only.

*Type.*—Cat. No. 4827, U.S.N.M.

#### 62. MAMESTRA FLORIDA, new species.

Ground color white, powdered with dull luteous and black scales, which gives a very pale gray cast. Head and thorax without markings. Primaries with the maculation rather well written, the large blackish reniform being the most prominent feature, a black costal subterminal blotch, a smaller blotch on the subterminal line opposite the cell, and the dark claviform being the other distinctive features. Basal line geminate, black, included space white, distinct, broken on the median space. Transverse anterior line geminate, black, outwardly angulated in the submedian interspace, and outcurved below vein 1. Transverse posterior line geminate, outer portion even, smoky, inner narrow, linear, denticulate, black, as a whole nearly parallel with the outer margin. Subterminal line white, marked by a preceding dusky shade, irregularly sinuate. A series of blackish terminal lunules. Median shade oblique from costa to reniform, which is completely darkened by it, then vague, diffuse, smoky, parallel with and close to

transverse posterior line. Claviform a small black loop at the angle of the transverse anterior line. Orbicular very small, blackish ringed, white centered, round. Reniform a large black blotch without definite outline. Secondaries white; veins, a punctiform median line, a submarginal undefined band and a narrow terminal line blackish. Beneath white; primaries with a black discal blotch fading out gradually in all directions, and a blackish venular line. Secondaries with a fragmentary dusky submarginal line.

Expanse, 32 mm. = 1.28 inches.

*Habitat*.—Biscayne Bay, Florida (Mrs. Slosson).

A single male specimen, in good condition. The species is obviously related to *chartaria*, and has the same general type of maculation; but it is much paler, smaller in size, and has white instead of smoky secondaries. There are a number of other minor differences in the maculation, which put the distinctness of this species beyond reasonable question. The genitalia have not been examined.

*Type*.—Cat. No. 4837, U.S.N.M.

### 63. MAMESTRA ROSEOSUFFUSA, new species.

Ground color dull whitish, mottled with smoky gray, which in turn is washed with a rosy or pink tinge or shading. Head and collar creamy, palpi brown at the sides. Thorax with a pink tinge over the creamy ground. Abdomen smoky luteous. Primaries with the dark, smoky overlay predominating to the outer portion of median space, then evenly defined against the whitish ground that prevails to the subterminal line, broken only by three dusky clouds in the subterminal space. Terminal space dusky, except at apex. Basal line geminate, outcurved in the interspaces, included space broad, whitish. Transverse anterior line geminate, outwardly oblique, irregularly outcurved in the interspaces, hardly defined, included space broad, whitish mottled. Transverse posterior line narrow, brown, crenulate, single, best marked on the veins. Subterminal line whitish marked by the dusky terminal space, and by three dusky preceding clouds. A series of terminal smoky dots on the veins, fringes with a series of triangular pale spots at base, from which pale lines extend to the tip. Orbicular small, round, very obscure, with a whitish annulus. Reniform not defined, forming a little darker shading. Claviform vaguely marked. A smoky median shade lies just within the dark area of the wing and practically bounds it. Secondaries yellowish, smoky. Beneath very pale, with a yellowish tinge. Primaries with a partial outer line and a smoky subterminal line. Secondaries whitish, creamy and powdery along the costa, with a small discal spot and half a row of extra median spots.

Expanse, 28 mm. = 1.12 inches.

*Habitat*.—Arizona.

A single good male, which has been in my collection for some years.

It has the wing form of and belongs with *renigera* and its allies. The peculiar rosy shading and the evenly marked contrast between the light and dark shading in the outer portion of median space should distinguish this species.

64. MAMESTRA GRISEATA, new species.

Ground color dark, powdery, ash-gray, without marked contrasts. Head with a smoky interantennal tuft. Collar with a blackish median line. Patagia blackish margined at base of wings. Primaries with a smoky, upright shading through the median space, and a similar shade in outer portion of subterminal and terminal space, leaving the apex free. Basal line geminate, blackish, broken. A small, black, basal streak terminates at the end of this line and the part of the basal space so inclosed is white-powdered. Transverse anterior line well removed from base, consisting only of a gray scale line without darker defining portions; in course slightly and evenly outcurved. Transverse posterior line geminate, smoky, included space gray, somewhat acutely outcurved over the cell and distinctly incurved below. Subterminal line white, slender, irregular, somewhat broader and prominent opposite the anal angle, relieved by the dark shading on both sides of it. A narrow black line at base of fringes which are gray, cut with smoky. Claviform rather short and broad, pointed, black margined, concolorous. Orbicular oval, oblique, moderate in size, outlined by black scales, then annulate with whitish gray, the center concolorous. Reniform outlined and ringed in the same way, rather small, upright, a little drawn in from the outside, but scarcely kidney-shaped. Secondaries smoky, paler at base, fringes whitish. Beneath paler gray, powdery; primaries with an outer band marked in the costal region only; secondaries with extra median smoky band complete, and a dark discal spot.

Expanse, 23 to 30 mm.=0.92 to 1.20 inches.

*Habitat*.—Hall Valley, Colorado (Dr. Barnes).

One male (the larger) and one female, in fair condition. This species has the antennal joints of the male very distinctly produced, laterally, and furnished with bristle tufts so as to be entitled to the term brush-like. It is therefore allied to *gnata* and should come near to it in the arrangement. In wing-form it is like *vicina*.

The most remarkable thing in the specimens before me is the disproportionately small size of the female, which is perhaps not the rule. The ovipositor, it may be noted, is exerted in the specimen under examination. It may be that, with further material at hand, *Utolonche* will prove a better genus for the species; but it may require an examination of the male genitalia to determine the matter finally.

65. HADENA TAPETA, new species.

Head and collar deep, dark, red brown, the collar tipped with yellow. Patagia red brown with a submarginal line of yellow scales. Thoracic

disk and posterior tuftings luteous yellow. Primaries with a luteous base, overlaid with bright red brown. Basal line single, angulate, black. Transverse anterior line nearly upright, single, black, with a triangular spot on costa and inner margin, else narrow, irregular. Basal space mottled, yellow and brown. Transverse posterior line black, broken, followed by a yellow shade line, outcurved over the reniform. Median space mainly brown, lighter below the submedian, with a smoky blotch on the inner margin. Subterminal line yellow, narrow, with irregular outcurves and inward teeth. Subterminal space brown, the yellow more obvious toward inner margin along transverse posterior line. Terminal space brown, some of the veins marked with yellow. A series of small, black, terminal lunules, beyond which is a series of yellow spots at the base of the fringes. Claviform not traceable in the specimen. Orbicular small, white, punctiform. Reniform creamy, with a brown central line, moderate in size, lunate in form. Secondaries whitish at base, darkening to smoky outwardly, the veins smoky, fringe more yellowish. Beneath whitish, reddish powdered along the costal region. Extra median dusky line and discal dots on both wings, and on primaries the terminal space is paler.

Expanse, 25 mm.=1 inch.

*Habitat*.—Cocoanut Grove, Florida (E. A. Schwarz).

A single good male from the U. S. National Museum. This is a small, narrow, and blunt winged form like *egens* Walker, or more like the small species of *Mamestra*. The bright, deep rusty brown, which is the predominating shade, is altogether different from any other described species known to me. The tarsi are brown, narrowly ringed with yellow.

*Type*.—Cat. No. 4822, U.S.N.M.

#### 66. HADENA LUTEOCINEREA, new species

Color a mottling of luteous and cinereous. Front and collar whitish, patagia with black submargin, thoracic disk luteous, posterior tufts gray; abdominal tufts blackish, abdomen pale luteous. Primaries shaded with white along the costal vein and a little powdered in the costal region. Basal line barely indicated on the costa. Transverse anterior line marked by an oblique smoky shade on the costa, and beyond that only by the difference between the yellowish base and smoky median space; its course a rather small, even outcurve. Transverse posterior line geminate on the costa, then outcurved over the cell and deeply incurved below, greatly narrowing the median space in the submedian interspace; defined only by the contrast between smoky median and yellowish subterminal space. Subterminal line yellow, irregularly angulate and sinuate, defined by the dark terminal space and a preceding gray shade which fills the subterminal space at costa and in the middle, leaving two yellowish blotches. A series of small, black terminal lunules. A small black line or streak at base. Orbic-



ular oblique, white. Reniform upright, kidney-shaped, moderate in size, marked by black scales, inwardly annulate with white. Claviform broad, pointed at the tip, extending across the median space, black lined, concolorous. Secondaries whitish, with a narrow smoky margin and a discal lunule. Beneath whitish, powdery, primaries smoky along costal region, secondaries with a discal lunule.

Expanse, 33 mm.=1.32 inches.

*Habitat.*—Montana.

A single male in fair condition. The species is related to *characta* in wing form and general pattern of maculation, but differs in the yellow shadings and generally paler colorings.

67. HADENA MUSTELINA, new species.

Ground color bluish gray, with brown shadings. Head and collar chocolate brown, patagia edged with brown scales posteriorly. Abdominal vestiture defective. Primaries with the ornamentation obvious along the costal region only. Basal line geminate, inner line deep brown, outer faint. Transverse anterior line geminate, inner line faint, brown, outer black on the costa, then dislocated, broken, and marked only by a few black scales across the wing; as a whole the line is a little outcurved, and outwardly oblique. Transverse posterior line geminate, marked by black spots on the costa, then brownish, obscurely lunulate, widely outcurved and, as a whole, nearly parallel with the outer margin. Subterminal line pale, irregular, preceded by scattered black scales and by a brown costal shade. Terminal space, except apex, a little darker. A brown, crenulated, terminal line. Ordinary spots proportionately very large, concolorous. Orbicular oblique, oval, open above, preceded by a black patch on the median vein, which seems continuous with the black inception of the transverse anterior line. Reniform kidney-shaped, defined by slightly darker scales, except that the narrow space between it and the orbicular is blackish brown. Claviform marked through the basal space by a whitish shade, margined above by black scales, and beyond the transverse anterior line by a margin of black, inferiorly edged by white scales, outline not complete inferiorly; in form it is short and broad. Secondaries smoky, even, fringes white, based by a darker line. Beneath, primaries smoky, with a scarlet tinge along costa and toward apex, an incomplete outer line and a discal lunule. Secondaries whitish, with a vinous red shade along costa and a blackish discal spot.

Expanse, 29 mm.=1.16 inches.

*Habitat.*—Santa Cruz Mountains, California.

One male, evidently bred, numbered, in red, No. 536, by Mr. A. Koebele. The specimen is evidently a little crippled, but the maculation is perfect and only the vestiture of the abdomen is defective. I cannot say, therefore, just how it is tufted. In a general way the species is allied to the *modica* series, but not closely to anyone in particular.

Type.—Cat. No. 4828, U.S.N.M.

[*Larva*.—Head rounded, scarcely bilobed, clypeus broadly triangular, moderate, paraclypeal pieces narrowly nearly attaining the vertex; brown, reticulate mottled, clypeus whitish, edged below with brown and with three brown specks in its lower part, the central one lowest; tubercles brown, ocelli black, mouth rather pale; width, 3 mm. Body cylindrical, normal, feet equal, tubercle iv of joints 9 and 10 above the center of the spiracle; shields obsolete. Reddish brown, darker dotted, a very broad, sharply-edged, white substigmatal band reaching joint 2 and extending narrowly on anal foot; a narrow greenish white dorsal line on joints 3 to 12. Spiracles small, black rimmed. Feet pale.—*Harrison G. Dyar*.]

68. HADENA JOCASTA, new species.

Ground color, dull fuscous gray. Head and thorax not maculate, patagia obscurely submargined with black. Primaries with the markings well written, median lines connected by a prominent black bar through the submedian interspace; a white shade filling the subterminal space beyond it to the anal angle. Basal line geminate, blackish, marked on costa only. A short black basal streak, reaching less than half way across the basal space. Transverse anterior line geminate, outer portion of line black, inner obscure, intervening space a little whitish powdered, as a whole a little outcurved. Transverse posterior line single, slender, blackish, crenulate and outcurved over the cell, even and incurved below. Subterminal line paler, a little sinuate, preceded by a darker shade; the terminal space also a little darker except at apex. A series of blackish terminal lunules, beyond which the fringes are cut with black. A median shade line is indicated between the ordinary spots and below the transverse bar. Claviform forms part of the bar connecting the median lines. Orbicular large, oblique, oval paler than ground, partly outlined by black scales. Reniform large, concolorous, kidney-shaped, the inner edge black margined, outer not defined. Secondaries even, smoky. Beneath smoky, with a vague outer line on all wings.

Expanse, 30 mm.=1.20 inches.

*Habitat*.—South Dakota; Chicago, Illinois.

One female in fair condition is before me from South Dakota, and Dr. Strecker has a duplicate from Chicago, Illinois. The species is allied to *diversicolor* in wing form and general habitus.

69. HADENA TELA, new species.

Ground color fuscous brown, overlaid by smoky. Patagia with a darker margin, else head and thorax concolorous. Primaries with the markings fairly evident, not contrasting. Basal line obscurely marked on the costa only. Transverse anterior line geminate, outer line black, inner obscure, included space a little paler, outwardly bent in the interspaces, oblique. Transverse posterior line geminate, widely out-

curved over the cell, almost evenly oblique below, inner line black, slender; outer line brown, indefinite, included space a little paler. Subterminal line pale, broken, a little irregular, preceded by black or brown marks in the interspaces. A series of small, black, terminal lunules. Orbicular round or oval, center concolorous, annulate with paler, narrowly outlined by black scales. Reniform upright, broad, almost oval, the sides a little flattened, large, incompletely outlined and with a paler annulus relieving the concolorous center. Claviform concolorous, outlined in black, extending halfway across median space, a black line from lower margin continuing to the transverse posterior line. There is a black streak along the inner margin near the base, and a black line from the lower part of reniform to the subterminal line. The tendency is to a darkening of the interspaces in terminal and subterminal spaces, taking the form of brown or blackish lines or spots. Secondaries whitish, with a narrow smoky margin in the male; smoky, paler at base, in the female. Beneath, varying from whitish to smoky, more or less powdery, with an incomplete outer line and a discal spot on all wings.

Expanse, 26 to 30 mm.=1.04 to 1.20 inches.

*Habitat*.—Rio Verde Mountains, Phoenix, Arizona, August and September (Dr. Barnes).

Two males and two females; none of them first class. The species is not really referable to *Hadena*, having an untufted abdomen; but it resembles the *mactata* series in markings and the *leucoscelis* series in wing form, hence I place it here tentatively.

*Type*.—Cat. No. 4823, U.S.N.M.

#### 70. POLIA EXTINCTA, new species.

Bluish gray over smoky, appearing powdery. Head and thorax irrorate, patagia with a submarginal blackish line. Primaries with the markings fairly evident, not greatly contrasting. Basal line blackish, broken, single. Transverse anterior line well removed from base, outwardly oblique, moderately outcurved in the interspaces, single, blackish, preceded by whitish gray scales. Transverse posterior line single, blackish evenly outcurved over the cell, thence parallel with the outer margin, denticulate, followed by a narrow pale shading. A series of sagittate blackish marks, in two series of three each, indicates the subterminal line and reduces the subterminal space to a narrow gray band except on costa. A short, thick, black bar crosses this narrow subterminal space, just below vein 2. There is a series of small, black, terminal lunules. Median shade smoky, obscure, oblique from costa to middle of reniform, bent at the lower margin of this spot, thence close to and parallel with transverse posterior line. Claviform concolorous, black margined, of moderate size, extending halfway across median space, pointed at tip. Orbicular oval, black ringed, concolorous. Reniform large, broad, kidney-shaped, inner margin

black, outer defined by pale scales. Secondaries smoky, powdery, with white fringes, a large discal lunule, an extra median line, and a series of terminal lunules, darker. Beneath, powdery, primaries smoky, with an extra median line; secondaries gray, with an extra median line and discal spot.

Expanse, 47 mm.=1.88 inches.

*Habitat*.—Twin Mountain, New Hampshire, August 3 (Edward W. Cross).

One female in good condition. The species belongs to the series with *aedon* and *pulverulenta*, differing from each in the ground color and details of maculation. I am quite certain that I have seen this species in collections with a name to which it is not entitled. The species of this genus do not seem to be common and of some of them I have seen only the types.

#### 71. POLIA ACERA, new species.

Ground color an even purplish gray with a reddish shading through the median space of primaries. Head with a brown frontal line. Collar more whitish inferiorly to a sharply defined black, transverse line. Patagia well marked, with a vague submarginal darker shading. Primaries with a sharply defined, slender, black streak from base through the submedian interspace, nearly to the transverse anterior line. Another less distinct black streak along inner margin, reaching somewhat nearer to the center of the wing. Basal line not traceable in the specimens before me. Transverse anterior line obsolete or very feebly traceable; geminate, with long outcurves in the submedian interspace and below the submedian vein. Transverse posterior line almost obsolete or imperfectly marked, geminate over the cell, then the inner line narrow, black, dentate on the veins. Subterminal line wanting or indicated by brown interspaceal streaks which are best marked opposite the cell and above the anal angle. Fringes reddish gray. The veins are marked with black scales. There is a brown, median shade line which is incomplete, marked between the ordinary spots and from the tip of the claviform to the inner margin. Claviform black ringed, concolorous, extends halfway across the median space, a slender black or brown streak connecting it with the transverse posterior line. Orbicular oblong, oblique, nearly or quite reaching the reniform, and probably in some instances confluent with it; a little paler than ground, incompletely outlined by black and brown scales. Reniform large, upright, kidney-shaped, somewhat irregular, open above and tending to enlarge, else narrowly outlined by brown scales, a little yellowish centrally. Secondaries smoky yellowish, paler at base, fringes whitish. Beneath, whitish or smoky, a little powdery, without obvious lines or spots.

Expanse, 42 (male) to 52 (female) mm.=1.68 to 2.08 inches.

*Habitat*.—Pullman, Washington (C. V. Piper); Seattle, Washington.

One pair only, the male in good condition save that it lacks antennæ; the female, which is much older, somewhat defective. The species has the wing form of *theodori*, but differs utterly in maculation from all others of the genus.

*Type*.—Cat. No. 4826, U.S.N.M

72. *POLIA DISPAR*, new species.

Ground color very pale luteous gray, almost white. Collar with a faint, smoky line below the tip. Patagia with a submarginal, diffuse, black line. Primaries with smoky powderings which obscure the ordinary maculation. Basal line vaguely indicated by smoky marks on the costa. Transverse anterior line hardly more obvious, but by patching together the scattered black scales, it is seen that the line is strongly angulate in the interspaces, the tooth below the submedian vein almost meeting one from the transverse posterior line. The tooth in the cell takes the form of a black, angulate mark before the orbicular. A short, slender, blackish streak from base to basal line in the cell and a similar, more obscure streak along the inner margin into the tooth of the transverse anterior line. Transverse posterior line somewhat better marked but obscure, incomplete, with long, irregular outward teeth on the veins, and long inward dentations in the interspaces; that in the submedian being best marked. Median shade smoky, somewhat diffuse, oblique from costa between the ordinary spots, then inwardly bent from the lower angle of reniform. It is a little the best marked feature of the wing. Subterminal line concolorous, marked by a series of preceding, sagittate, smoky marks. A series of distinct, black, interspaceal, terminal lunules, beyond which the fringes are cut with smoky. Fringes a little dentate. Orbicular small, round, concolorous, incompletely and very narrowly outlined by black scales. Reniform large, upright, a little kidney-shaped, obscurely annulate with yellowish, a little darkened by the median shade inferiorly. Secondaries in the male white, immaculate; in the female with smoky veins, a smoky terminal line and smoky powderings toward anal angle where an extra median dusky line is well indicated. Beneath white or nearly so with small discal spots, much less obvious in the male.

Expanse, 42 (male) to 45 (female) mm. = 1.68 to 1.80 inches.

*Habitat*.—Glenwood Springs, Colorado, October 1-10 (Dr. Barnes).

One pair, both fairly good examples. The male has the antennæ serrated and bristle tufted. The primaries are a little broader and more pointed than usual in the genus, and the species is much more obscurely marked. Yet, so far as the maculation is traceable, its dentate character fits well into the series in which I have placed it. The very light color separates it from all save *ochracea*, and from that species, the white secondaries of the male and the totally different ordinary spots will distinguish it.

## 73. POLIA OCHRACEA, new species.

Ground color a dirty pale gray, with smoky powderings and yellow ocherous shadings. Collar, thoracic disk, and patagia with ocherous shading. Primaries with the ordinary lines all present, smoky, not prominent. Basal line geminate, smoky, broken, the included space broad and whitish on costa. Costal region and cell shaded with blackish before the transverse anterior line, which is unusually well removed from base. Transverse anterior line single, outwardly oblique, smoky, outcurved below median and outwardly toothed below submedian vein. Transverse posterior line single, smoky, irregularly dentate or zigzag, well outcurved over the reniform and well bent inward below, so that the median space is much narrowed. The two lines are connected by a smoky bar in the submedian interspace. Median shade smoky, diffuse, obscure, broken, the median space being so much powdered that the shade line is only locally definable. Subterminal line composed of ocher yellow, somewhat lunate marks preceded by smoky shadings. A narrow, blackish, interrupted terminal line. Fringes a little dentate. Orbicular large, broad, sides outlined in ocher yellow, open above and below. Reniform very large, broad, a little constricted centrally, more so from the outside, sides marked with ocher yellow scales, above and below undefined. Ocher yellow scales are scattered over the wing, but are more obvious in the basal and subterminal spaces. Secondaries whitish, with a smoky tinge, with a blackish extra-median line, a smoky, diffuse, subterminal shading, a blackish, lunulate terminal line and a smoky discal lunule. Beneath with a yellowish tinge; primaries smoky on disk, both with an extra-median dusky band and a dusky lunule.

Expanse, 43 mm. = 1.72 inches.

*Habitat*.—Iowa.

A single, rather defective male, received years ago from Henry Edwards. The antennæ are serrated and bristle tufted. The species should be recognizable from its ocherous mottlings, which are different from any congeneric form. The wings are rather broad and pointed, as in *dispar*, which this species most resembles.

## 74. PERIGEA LUCETTA, new species.

Ground color glistening fawn brown, with a tendency to yellow shadings. Head yellow in front, with a narrow black line, a velvety brown interantennal line and a velvety brown neck. Palpi yellow in front, brown at the sides. Collar with a yellowish shade toward base, above margined by a black transverse line. Patagia marked, with a yellowish shade at costal base of primaries. Primaries with the ordinary lines obscure. Basal line marked by scattered yellow and black scales. Transverse anterior line with difficulty traceable, partly geminate, a little outcurved. Transverse posterior line a series of interspaceal blackish lunules; abruptly bent on the costa, else nearly parallel

with the outer margin. It is followed by a broad, vague yellowish shading, merging gradually into the ground. Subterminal line unusually close to outer margin, irregular, consisting of silver gray scales placed in groups. A series of black interspaceal terminal spots, edged with gray scales and fringes cut with gray. Claviform indicated by smoky scales, very small. Orbicular small, broadly oblong, upright, edged by whitish or gray scales. Reniform moderate, outlined by a narrow gray line, with a figure-8 shape, a little paler centrally, almost whitish below. Space between the ordinary spots more blackish and a similar shade obtains beyond the reniform. Secondaries smoky, darker outwardly, glistening, the fringes whitish. Beneath, primaries smoky, reddish powdery along costa, whitish along internal margin, terminal space gray. An extra-median smoky line. Secondaries gray, reddish powdery along the costal region. An extra median brown line, which does not reach the inner margin. Terminal space narrowly gray, margined by a brown band, which almost fills the space to the extra median line on the costa, but narrows toward and barely reaches the internal angle.

Expanse, 41 mm. = 1.64 inches.

*Habitat*.—Colorado (Barnes).

A single, good male. This is a large form and quite different in appearance from our other species. It has somewhat the shading of *fabrefacta*, but is very differently marked.

#### 75. PERIGEA CERVINA, new species.

Ground color a somewhat glistening, soft fawn brown with scattered black powderings, some of the scales tipped with white. Head and thorax without obvious markings. Primaries without contrasts, all lines obscured. Transverse anterior line marked by obscure blackish shadings, which indicate that it is upright, outwardly angulated in the interspaces. Transverse posterior line marked by a series of small, obscure, blackish venular dots, outcurved over the cell. Subterminal line composed of a series of irregular, interspaceal, blackish marks. A series of rather obvious white dots terminates the veins, and a very obscure series of dusky spots marks the interspaces. Orbicular irregular, oval, concolorous, obscurely and incompletely outlined by blackish scales. Reniform large, broad, incompletely outlined by black scales, among which a few white ones are interspersed: concolorous except for an oblique whitish streak through the lower half. Claviform a small blackish spot below the orbicular in the submedian interspace. Secondaries evenly smoky, a trifle paler at base, fringes more whitish. Beneath gray, powdery, reddish tinted outwardly and along the costal margin, a dusky outer line and a discal mark on all wings.

Expanse, 38 mm. = 1.52 inches.

*Habitat*.—"Florida;" Mrs. Slosson.

The species resembles *vecors* and *albolabes* in wing form and habitus,

and is somewhat like *punctifera* in color, but it is larger than the latter and much more obscurely marked. It may be described from a more southern locality, but I have failed to recognize it. I have only one good female example.

76. PERIGEA TEXANA, new species.

Ground color dirty fuscous brown, more or less black powdered. Head and thorax without definite markings. Primaries with all the normal maculation present; no prominent contrasts. Basal line single, black, followed by a somewhat paler shading, outwardly angulate on the median vein. Transverse anterior line black, single, generally broken, usually preceded by a paler shading, outwardly oblique, broadly toothed. Transverse posterior line single, black, slender, continuous, followed by a paler shade, irregular in course, but almost upright and only a little bent over the cell. Subterminal line pale, broken, preceded by a blackish shading which becomes developed into a large triangular patch opposite the cell and forms the most prominent feature of the wing. Terminal space usually a little darker, as is also the median space, leaving the subterminal space the palest portion of the wing. A series of narrow, dusky terminal lunules, cut by whitish dots on the veins. A narrow, dusky median shade extends from costa obliquely to the lower margin of the reniform, then parallel with the transverse posterior line to the margin; usually only the part below the reniform is obvious, but in some examples it can be traced its full course. Orbicular variable in size and form, from triangular to round, always of the lighter ground color, narrowly outlined in black. Reniform upright, always of good size, somewhat variable, usually wide, a little constricted centrally, lower portion larger than the upper, a few white scales marking the lower angles. The space between these ordinary spots is often darker and sometimes partly black. Claviform a little black loop at the end of an outward angulation of the transverse anterior line. Secondaries smoky, with a yellowish tinge, much paler at the base, fringes yellowish. Beneath pale, powdery, with a discal dot and narrow extra median line black; all well marked in some examples but almost completely absent in others.

Expanse, 27 to 30 mm. = 1.03 to 1.20 inches.

*Habitat*.—Round Mountain (Schaupp); Shovel Mountain, Texas (Barnes).

Eight males and one female, mostly in good condition. There is little real variation, though no two examples are alike. The ordinary spots differ in size and a little in shape; but the species remains obviously the same. It belongs to the series with rather short wings and stout body, like *loculosa* Grote, and really resembles a reduced *Luperina* rather than normal *Perigea*.

*Type*.—Cat. No. 4833, U.S.N.M.



## 77. PERIGEA CONSORS, new species.

Ground color a dull luteo-fuscous, more or less black powdered. Head and thorax immaculate. Primaries with cell before and between the ordinary spots more or less completely black filled. Basal line marked by black scales on the costa and vaguely traceable to the median vein. Transverse anterior line marked on the costa and by black scales which emphasize a difference in shade between basal and median space. In course it is a little oblique, strongly angulate or broadly toothed. Transverse posterior line narrow, blackish, irregular, followed by a paler shading. Subterminal line pale, preceded by a dusky shade which is broader opposite the cell. A broken dusky terminal line, veins pale tipped. A vague, narrow, median shade, marked on the costa and again below the reniform. Orbicular small in the specimens, irregular, tending to open to the costa. Reniform rather large, a little constricted centrally, larger below. Claviform small, outlined by blackish scales. Secondaries whitish, with a yellow tinge at base, with a broad smoky border and a small discal spot. Beneath pale, powdery, with a broken outer line and discal spots.

Expanse, 25 to 27 mm. = 1.00 to 1.08 inches.

*Habitat*.—Phoenix, Arizona (Dr. Barnes).

Two males and one female, all of them poor and at first sight resembling small, rubbed examples of *P. texana*. They are, however, smaller throughout, and the black-filled cell is a conspicuous difference.

## 78. CARADRINA LEUCORENA, new species.

Ground color pale luteous, with a reddish tint. Head and thorax immaculate. Primaries with the reniform white marked, a dusky shading along median vein, sometimes to the base, giving a little the appearance of a *Leucania*. Transverse anterior line irregular, geminate, broken, marked only by blackish scales, sometimes scarcely traceable. Transverse posterior line geminate, smoky, with the usual outcurve over the cell, thence rather evenly oblique, or only a little incurved. Outer line composed of small venular dots. Inner line may be continuous, slender, and crenulated, a series of interspaceal lunules, or a series of venular marks. Sometimes the line is scarcely traceable and it is never prominent. Subterminal line is an irregular, vague, paler shading, which may or may not be edged by darker scales. Fringes a little darker, sometimes obscurely cut with smoky, sometimes based by a series of small, blackish, interspaceal lunules, sometimes by white dots terminating the veins. Orbicular a round dot of the darker powdering, surrounded by a ring of the even ground color; but it is always obscure and as often wanting. Reniform upright, narrow, centrally constricted, very obscure, except that the outer edge is partly white and the inferior portion is also white. Secondaries even, dull, pale smoky, with a yellowish tinge, lighter basally. Beneath pale,

creamy gray, with a reddish tinge, with or without an outer smoky line and discal spot on one or both wings.

Expanse, 28 to 38 mm. = 1.12 to 1.52 inches.

*Habitat*.—Los Angeles County, California, in September (U.S.N.M.); southern California (Barnes); Phoenix, Arizona, March 11 (Dr. Griffiths).

Eight specimens, seven of them females, are before me, most of them in good condition. The species is smoothly scaled and has somewhat the appearance of the Eastern *Platysenta videns*, but it is much paler, much larger, broader winged, and with none of the sharp contrasts. Everything is vague, and even the white-marked reniform is not aggressively conspicuous. It has no very close allies in the genus to which I have referred it.

*Type*.—Cat. No. 4832, U.S.N.M.

#### 79. HOMOHADENA CANDIDA, new species.

Ground color white, more or less overlaid and mixed with smoky and black scales. Head with a broad, black stripe across the front. Collar, with a transverse line of black scales near base, then yellowish, smoky, white and smoky shades in succession. Disk powdered with smoky and blackish scales. Primaries with the ordinary maculation lost or changed to a strigate type. A black streak runs through the middle of the wing from base to outer margin. All the usual lines are indicated by oblique black lines across the costal region. Transverse anterior line marked on inner margin by an oblique blackish streak. Transverse posterior line indicated by black, venular, somewhat elongate dots. The outer portion of the wing is smoky, much darker toward the internal angle, and through this darker shading a paler subterminal line is vaguely traceable. There is a series of short, interspaceal black lines in the terminal region. Fringes very broad, interlined, cut with smoky. Ordinary spots not traceable. Secondaries white, semitransparent; a blackish terminal band, broadest at the apex, narrowing rapidly and lost a little beyond the middle. Beneath white, iridescent, primaries smoky along the costa and forming a broad outer band, secondaries with a smoky apex and a narrow terminal line.

Expanse, 26 mm. = 1.04 inches.

*Habitat*.—Beeville, Texas, May 13 (E. A. Schwarz).

A single female, which may not have its best place as a *Homohadena*. It resembles most nearly *Oncocnemis atricollaris*, but has unarmed foretibiae. The specimen is in fair condition, but the thorax has been compressed, causing the collar to project hood-like.

*Type*.—Cat. No. 4814, U.S.N.M.

#### 80. ONCOCNEMIS CILIATA, new species.

Ashen gray, with smoky streaks, shades, and powderings. Head black powdered in front and on the vertex. Collar with a smoky and

a blackish transverse line. Thorax irregularly powdered with gray, smoky and black scales. Primaries streaked with blackish, smoky and white, darkest through the upper half of the median space, with a dusky oblique shade at the apex and another at the internal angle. Median lines lost. Subterminal line indicated by a series of black and gray streaks, disconnected centrally. A broken black terminal line at the base of the very long, even fringes, which are interlined with smoky, and cut with smoky and black. Claviform a long, broken black streak from base to the middle of the wing, margined on both sides with white scales. Orbicular oval, elongate, pointed basally, ringed with white, with smoky center. Reniform small, lunate, ringed with white and with a pale, central powdering. Secondaries smoky, with a vague reddish shading, paler at base. Beneath gray, powdery, with small discal spots, but without lines in the example before me.

Expanse, 22 to 25 mm. = 0.88 to 1.00 inch.

*Habitat*.—Colorado desert.

Two females, neither of them in good condition, but with the maculation perfectly defined. This is the smallest of the stout species and belongs to the strigate series. I have had it for some years awaiting additional material, but have received none, and conclude that the species is very local.

#### 81. TRICHOPOLIA SERRATA. new species.

Ground color a dull, dark, smoky brown, overlaying a luteous ground. Head and thorax dark brown, with a few luteous scales intermingled. Abdomen dull gray. Primaries with the maculation fairly evident, not contrasting. Basal line pale, the margins marked by scattered black scales, not well defined. Transverse anterior line geminate, nearly upright, included space pale, outer line broken, black, slender, preceding line hardly darker than the ground. Transverse posterior line narrow and black, outer line smoky; in course, outcurved over the reniform and almost touching it, only a little drawn in, below. Subterminal line pale, irregular, broken, without obvious defining shades, the veins a little darker through subterminal and terminal spaces. Below vein 5 a black bar crosses the subterminal space and is continued, less obviously, to the outer margin beyond subterminal line. A series of black terminal lunules. Orbicular large, round or nearly so, of the paler ground color, black ringed. Reniform large, nearly round, of the pale ground color, black ringed. Claviform broad, pointed, extending nearly across the median space; of the darker, overlaying shade, black ringed. Secondaries white, with a narrow, smoky, terminal line. Beneath white, powdery along the costa, primary with a partial outer line; all wings with a blackish discal spot.

Expanse, 25 to 28 mm. = 1.00 to 1.12 inches.

*Habitat*.—Texas, without definite locality. Two males, of which one is in very good condition. The antennæ are a little serrated, the pro-

jections tipped with bunches of bristly hair, front rugose, but hardly protuberant. We have now three species in this genus, one with pectinated, one with serrated, and one with simple male antennæ.

*Type*.—Cat. No. 4821, U.S.N.M.

82. *LEUCANIA VELUTINA*, new species.

Ground color reddish luteous, washed with red brown, especially beyond the middle of primaries. Thorax with a narrow, sharp crest; disk carneous. Palpi reddish gray above, deep velvety brown at the sides. Abdomen washed with carmine red. Primaries with an irregular, diffuse purplish shade along the submedian vein. Basal line vaguely indicated. Transverse anterior line narrow, single, yellowish, a little oblique outwardly to the middle, and then with a small angle a little oblique inwardly. Transverse posterior line forming an acute angle just below the costa, then evenly oblique to the hind margin; narrow, pale, margined on each side by darker red brown. Subterminal line narrow, yellowish, irregular, preceded by a few small, obscure dark spots, the terminal space a little paler than the rest of the wing. Fringes rust red. A vague dusky median shade line is marked below the cell. Orbicular moderate in size, a little irregular, annulate with yellow. Reniform of good size, oblique, oblong, sides outlined in yellow, upper and lower margins obscure. Secondaries semitransparent at base, blackish outwardly, with carmine, interlined fringes and a carmine wash on the disk. Under side of body velvety dark brown. Primaries brown with a carmine wash, with a blackish discal spot and a blackish outer line. Secondaries with a carmine powdering along costal margin, apex, and half of outer margin, with a broken, dusky outer line and a narrow discal spot.

Expanse, 39 mm.=1.56 inches.

*Habitat*.—Biscayne Bay, Florida (Mrs. Slosson).

The species has the wing form of *unipuneta* and its general build. The markings are all very narrow, thread-like, perfectly distinct, and yet not contrasting. In color and general appearance it is entirely unlike any of our described forms, though like some of the southern species, from which it seems to be also sufficiently distinct.

The type and only specimen is a female, lacking antenna but otherwise in good condition.

83. *HIMELLA QUADRISTIGMA*, new species.

Ground color fawn gray, varying to reddish or darker according to the amount of dusky powdering. Head and thorax immaculate. Primaries with the ordinary spots black or blackish, contrasting, median lines simple, even, narrow, black, with or without an accompanying pale shade. Basal line simple, broken, blackish, with or without a following paler shade. Transverse anterior line outwardly oblique, a little out-curved, and a trifle drawn in on the subcostal and submedian veins,

with or without a preceding paler shading. Transverse posterior line outcurved over the cell, evenly oblique below, with or without a following paler shade line. A series of black, terminal lunules, followed by a pale line at the base of the fringes. In the darker specimens a paler shade extends from the apex through the subterminal space, making a vague subterminal line by contrasting with the darker terminal region. Orbicular moderate in size, a little irregular, with or without a paler annulus. Reniform oblique, centrally constricted and larger below, with or without a pale annulus. Secondaries whitish, with a yellow tinge and a smoky terminal line. Beneath whitish, powdery, with a broken line and black discal spot on all wings.

Expanse, 27 to 30 mm. = 1.08 to 1.20 inches.

*Habitat*.—Bluff, Utah, May 30 (Mrs. H. M. Peabody); Santa Rita Mountains, Arizona, June 19 (E. A. Schwarz).

One male, three females, all from the U. S. National Museum. Like *contrahens* in type of maculation, but the lines are more even and the contrasting ordinary spots are characteristic. The variation is in the amount of dark overlaying scales which, when most abundant, leave a paler border to all the dark markings.

*Type*.—Cat. No. 4781, U.S.N.M.

#### SELICANIS, new genus.

Head small, retracted; front smooth, flat, or with a blunt point. Tongue weak and short. Palpi small, not reaching the middle of the front, terminal joint small. Antennæ of the male with joints marked with small tufts of cilia or single, longer, lateral bristles. Eyes naked. Thorax short, convex, subquadrate, with a small tuft behind the collar and a somewhat indefinite bunch at the base. Abdomen proportionately very long, exceeding the secondaries by one-third to one-half its length; without obvious tuftings. Legs short and stout in the male, clothed with dense bunches of hair and scales; in the female more sparsely clothed, without spinules or other horny armature. Thoracic vestiture consists of long, flattened, scale-like hairs. Wings proportionately short and narrow, with well-marked apices and obliquely arcuate outer margin.

The genus seems to belong with the Orthosiids. Its type is *cinereola*, which is herewith described, and probably the species described as *Anchocelis digitalis* by Grote will also find a place here. *Anchocelis* has a cylindrical frontal protuberance and a spiral, functional tongue, which the new genus does not have.

#### 84. SELICANIS CINEREOLA, new species.

Mouse gray to fawn brown, powdery, scales of thoracic vestiture often white tipped. Head and thorax without markings. Primaries with the median lines whitish, the median space obviously darker than the rest of the wing; narrow, unusually even and like a broad, dark,

central band. Basal line not obvious. Transverse anterior line well removed from base, a little outcurved, even, margined on each side by a narrow smoky line. Transverse posterior line makes a little outward bend below the costa and runs thence evenly and only a little oblique, margined on both sides with a narrow smoky line. Subterminal line, when best marked, whitish, a little diffuse, somewhat irregular, dislocated a short distance from costa, preceded by a smoky shading. From this to entire absence, all intergrades occur. Of the ordinary spots, the reniform is usually traceable by a line of whitish scales, but sometimes all are absent. Secondaries varying from reddish to smoky gray, uniform, or only a little paler at the base. Beneath reddish to smoky gray, powdery, without markings in the examples before me.

Expanse, 30 to 40 mm. = 1.20 to 1.60 inches.

*Habitat*.—Denver, Colorado, October 12 (Osler); Glenwood Springs, Colorado, October (Dr. Barnes).

Three males and three females in fair condition. The species somewhat resembles an exaggerated *Telesilla*, or a narrow-winged *Plagiomimicus*; but the structural characters are, of course, distinctive. The variation is in size, in ground color, and in the degree of development of the subterminal line; and yet withal the species holds its characteristic appearance.

*Type*.—Cat. No. 4831, U.S.N.M.

#### ANEPISCHETOS, new genus.

Head moderate in size, hardly prominent. Eyes naked, large, hemispherical, prominent. Tongue normal. Palpi very long, exceeding the front by nearly the length of the thorax, transversely flattened, vestiture scaly and directed toward both edges, middle joint much the longest, projecting straight forward or a little oblique, terminal joint less than one-half as long as the second, clothed in the same way, directed obliquely upward. Front with a long pointed tuft, extending forward over the base of the palpi. Antennæ of the male with long lateral bristles. Thorax and abdomen untufted, the former with smooth, scaly vestiture. Legs rather long, closely scaled, unarmed except for the usual spurs on the tibiæ. Primaries triangular, short, broad, with acute apex and arcuate, oblique, outer border.

At first sight this seems a Deltoid genus, but the venation of the secondaries is strictly 3- $\bar{n}$ d, though vein 5 is fairly developed. The palpi have the scales projecting beyond the edges both above and below, forming a two-edged member and thus differing in a second essential. We have no previously described genera with which this might be best allied, and, pending further discoveries, this might be associated with *Doryodes*, etc.

#### 85. ANEPISCHETOS BIPARTITA, new species.

Ground color a pale, luteous brown. Head and thorax with an admixture of gray. Primaries with an even, oblique white line, start-

ing from the costa about three-fourths from base and ending at about the middle of the inner margin. Within this, the wing is uniform, yellow brown. Beyond the white line is a pale shade which merges gradually into an obscure dusky or smoky shading. A subterminal line of brown spots is traceable through this shading, in most specimens. The orbicular is indicated by a black dot. There is a brown line at the base of the fringes. Secondaries, uniform smoky brown. Beneath, smoky, immaculate.

Expanse, 17 to 19 mm.=0.68 to 0.76 inch.

*Habitat.*—Key West, Florida.

Four males are before me and I have seen others. The species seems to be not uncommon, and may have been described as a Deltoid, which it resembles as well in the simple maculation as in the wing form and abnormally developed palpi.

*Type.*—Cat. No. 4815, U.S.N.M.

#### DIALLAGMA, new genus.

Head moderate in size, front broad, little convex, not tufted. Antennæ in the male well ciliated, with longer, bristle-like hair on each side of each joint; in the female simple. Tongue normal. Eyes naked, moderate in size, not prominent. Palpi disproportionately stout and long, straight or somewhat oblique, exceeding the head by its own length; second joint longest, a little arcuate above, clothed with scales directed downward and longer at the tip, so that this is very broad when viewed from the side. As the joint is also thickened laterally, the palpi diverge and do not form a snout. Terminal joint short, stout, subequal, straight or a little oblique upwardly. Thorax small, convex, vestiture scaly, close, forming no tufts. Abdomen well exceeding anal angle of secondaries, untufted. Legs unarmed except for the usual spurs, which are long and stout, vestiture scaly and, though close, quite thick, so that the tibiae especially seem heavy. Primaries rather long, moderate in width, widening rather evenly from base, apex rectangular, outer margin even, fringes long. Venation normal. Secondaries proportionate. Vein 5 well marked though weaker than the others, from the cross vein rather close to 4, but not forming a branch of the median.

As a whole the moths are somewhat slender and narrow-winged closely scaled, and most marked by the heavy palpi. The genus seems best related to the Encalypterid series at present.

#### 86. DIALLAGMA LUTEA, new species.

Ground color clay yellow, smooth, with rough black powderings from which the markings are formed. Head a little more yellow on the vertex, palpi chocolate brown at the sides, collar and disk of thorax irrorate with brown; but not otherwise ornamented. Primaries with all the lines blackish and more or less broken, a large quadrate blackish patch in the middle of the wing, just beyond the transverse anterior

line, forming the most prominent feature. Basal line forming triangular blackish brown costal spot. Transverse anterior line upright or nearly so, blackish, broken, diffuse. Transverse posterior line blackish, broken, single, abruptly and somewhat squarely exerted over the cell, followed by a slightly paler shade. Subterminal space darkening to a blackish shade, which marks the subterminal line by the contrast with the paler terminal space; this line only a little irregular. The terminal space itself becomes somewhat darker to the margin, on which is a series of black, interspaceal dots, the fringes marked by dusky cloudings opposite the veins. Orbicular a distinct, round, black dot. Reniform very obscure, and indicated only by a variable number of black scales. Secondaries smoky, immaculate. Beneath variable; primaries blackish, with a pale subterminal shading, and this varies to an almost even, smoky gray; secondaries whitish, with a discal spot, a median, an extra-median, and a terminal band smoky brown or blackish, the fringes cut with dirty white and smoky.

Expanse, 19 to 21 mm.=0.76 to 0.84 inch.

*Habitat*.—Charlotte Harbor (Mrs. Slosson); Archer, Florida, July 3 (Koebele); September (U.S.N.M.).

Several specimens, representing both sexes, are before me, and I have seen others. The species seems to be rather common in some portions of Florida, and is not subject to variation except in the relative distinctness of the black markings. The quadrate dusky patch in the middle of the basal third of the primary is characteristic.

*Type*.—Cat. No. 4834, U.S.N.M.

#### HELIODES Guenée.

Thus far no representatives of this genus have been described from our fauna; but I have now before me two species that seem to fit perfectly to Lederer's characterization. The moths are small, plump, with fine, loose vestiture, and short, trigonate primaries. Head with a protuberant, bulging front, with a naval-shaped depression in which is a short pointed process. Palpi reaching this process, the terminal joint a little oblique, with rough, hairy vestiture. Eyes narrow, small, naked. Tongue normal. Antennæ in both sexes simple. Tibiæ without spination or other armature, save the usual spurs; legs short, stout, with heavy clothing of scales and hair, not tufted. In habitus the species resemble *Melicleptria*.

#### 87. HELIODES ANGELICA, new species.

Ground color of head and thorax black, the fluffy vestiture yellowish and sometimes with a carmine shading. Abdomen black, terminal segment yellow. Primaries with a blackish ground, over which there is a more or less obvious carmine shading, sometimes making the wing absolutely carmine and sometimes leaving it almost black. An oblique yellow band, made up of two contiguous spots, crosses the primaries



beyond the middle. These spots are usually joined, but they may be entirely separated and even reduced to small dots. In some specimens a yellowish subterminal line is traceable, and in one example it is complete; in another there is no sign of it. There may be a yellow or gray shading on the costa in the basal space, and there is usually one on the costa just before the apex. Secondaries black, fringes yellowish, with two oblong, yellow spots, which may be united so as to form an incomplete median band, may be reduced to mere dots, or may be entirely absent. Beneath black, the spots of the upper side reproduced in white.

Expanse, 14 to 16 mm. = 0.56 to 0.64 inch.

*Habitat.*—Los Angeles County, California, in May.

Three males and three females, all from the U. S. National Museum collection. The line of variation has been indicated in the description, and it is not improbable the altogether immaculate examples may occur.

*Type.*—Cat. No. 4818, U.S.N.M.

#### 88. HELIODES RESTRICTALIS, new species.

Ground color of head and thorax black, more or less overlaid by white or yellow scales and by yellow fluffy hair. Abdomen with a carmine tinge, which is most obvious laterally, terminal segment yellowish brown. Primaries black, overlaid by carmine, with a tendency to a covering of whitish scales in the basal space. Median space yellowish or whitish, broken by the large reniform, which is of the ground color. Fringes blackish, smoky. Secondaries black, immaculate in one example, with a white spot, a little above the middle, in the other. Beneath black, primaries with two, secondaries with one white spot.

Expanse, 13 to 14 mm. = 0.52 to 0.56 inch.

*Habitat.*—Butte County, California (Coquillett).

One male and one female, in fair condition only, from the U. S. National Museum. It is impossible to say just what is the range of variation in this species, but it does not tend in the direction of *angelica*. It will probably tend to a broader, pale median space, in which the reniform may be completely surrounded. The body beneath is brightly clothed with yellow on the breast, while the venter is carmine except at the base.

*Type.*—Cat. No. 4817, U.S.N.M.

#### NARTHECOPHORA, new genus.

Eyes naked, hemispherical, large, somewhat prominent. Antennæ in both sexes simple, feebly ciliated. Tongue weak and soft, but of moderate length. Palpi very small, drooping, almost aborted. Head with clypeus turned up to form a projecting rim, front produced into an oblique plate, the lateral corners of which are drawn out into points; the vertex continued forward into a keel, surmounting the frontal plate and projecting in a point some distance beyond it. Seen when the vesti-

ture is complete, it seems like three corneous points, the central longer and a little above the others. Thorax rather small, oval, convex, the vestiture thin, mostly hairy, forming no definite tuftings. Abdomen conic, well exceeding the anal angle of secondaries, smoothly scaled. Legs moderate in length, proportionate, smoothly scaled, tibiae not spinulated, anterior with a slender curved claw at tip. Wings moderate, seeming rather frail, because their peculiar maculation gives them a thinly scaled appearance. Primaries long, the costa scarcely convex, apex somewhat drawn out, outer margin oblique and arcuate. Secondaries proportionate, vein 5 a very strong fold, almost midway between 4 and 6.

The genus resembles *Acopa* in habitus and general appearance, and belongs with it. In frontal structure it resembles *Tristyla*; but the vestiture is not scaly and the tibial armature and weak tongue will separate it.

89. NARTHECOPHORA PULVEREA, new species.

Ground color a somewhat reddish luteous, evenly powdered with blackish scales, so separated that the ground color showing through, makes the wing seem semitransparent. Head and thorax immaculate. Primaries with a broad, somewhat diffuse band, even or toothed at the middle, representing the transverse anterior line. A similar, more diffuse, narrower, bisinuate band represents the transverse posterior line. Reniform a white crescent at the end of the discal cell. Secondaries, more whitish, somewhat silky, immaculate, a little more dusky outwardly. Beneath, silky reddish-gray, immaculate, save that on the primaries the white reniform shows through from the upper side.

Expanse, 21 to 23 mm. = 0.84 to 0.92 inch.

*Habitat*.—Tucson, Arizona, July 19, 20, 21.

Two males and two females, very much alike, save that the females are a trifle darker and better marked. The species is so simply ornamented that it should be easily recognizable, even aside from the strong generic characters. The examples were taken by Mr. E. A. Schwarz, and are from the collection of the United States National Museum.

*Type*.—Cat. No. 4783, U.S.N.M.

PALADA, new genus.

Head small, closely applied to thorax, though hardly sunken. Front rough and protuberant, clothed with short, stiff vestiture. Tongue normal. Eyes naked, reniform. Palpi reaching to the middle of front, second joint densely clothed, terminal joint short, oblique, obtuse. Thorax plump, with a layer of close scales, over which is a fluffy, thin, hairy vestiture. Abdomen conic, reaching to the anal angle of the hind wings. Legs short, stout, clothed with scales and long hair, tibiae not spinulated, anterior short and broad; at the tip the inner angle is prolonged into a horny, claw-like process; the outer into a short, blunt

spur. Wings short and stiff; primaries with the costal margin sinuate, distinctly depressed at its middle, apex acute, drawn out, outer margin evenly oblique, fringes long, margins even; secondaries, rounded, proportionate.

This little genus of Heliothids is allied to *Melicleptria*, from which it differs by the lack of tibial spinules. The short, broad fore-tibia, the protuberant rough front, and the sinuate costa of the primaries form a combination that separates it from the other allied forms.

90. PALADA SCARLETINA, new species.

Head and thorax black, clothed with fluffy light-yellowish hair that gives a hoary effect on a good specimen. Abdomen black, terminal segment luteous. Primaries with basal and subterminal spaces tawny to deep smoky brown, median and terminal spaces luteous, the latter very narrow, the former superiorly shaded with tawny or smoky. The lines are marked by the contrasts in the shading of the spaces. Transverse anterior outcurved, the edges a little irregular; transverse posterior evenly bisinuate; subterminal irregular and very close to outer margin. Fringes purplish to smoky. Reniform vaguely indicated by a somewhat darker shade. Secondaries, evenly black. Beneath, primaries scarlet, verging to purple, black at base, yellow at the apex; secondaries black, with a brown tinge. Breast yellowish, venter red brown, the apex yellow.

Expanse, 17 to 20 mm. = 0.68 to 0.80 inch.

*Habitat*.—California; San Diego County, California; Utah.

Two males and one female, only the latter in really good condition; the examples received at long intervals. The two males are the smaller and darker, one of them having been in my old collection twelve years ago. The species is so strongly marked that it does not seem possible to mistake it.

*Type*.—Cat. No. 4816, U.S.N.M.

91. SCHINIA RENIFORMIS, new species.

Head and thorax white, vestiture hairy over a scaly base. Primaries white at base, merging gradually into a broad transverse anterior band of a greenish-gray color, which forms an outward acute angle below the median vein. Median space white. Subterminal space greenish gray or olivaceous, the margins even, broadest on costa, outwardly curved over the cell and then very even to the inner margin. Subterminal line broad, white, very even. Terminal space greenish gray, even. Fringes white, cut at the tips with greenish gray. Reniform large, greenish gray, oblique, centrally constricted. Secondaries white, with a variably wide smoky outer band, through which there may be a white shade line. Sometimes there is a smoky discal spot. Beneath, with the maculation of the upper side reproduced except for the basal band of the primaries.

Expanse, 20 to 25 mm. = 0.80 to 1.00 inch.

*Habitat*.—Colorado (Bruce); Denver, June 20 (Osler).

Six specimens, evenly divided as to sex, and I have seen others. The species is allied to *cumatilis* in appearance and has been confused with it; but it is obviously distinct by the large, prominent reniform and the very even margins of all the maculation. The gray color has the appearance of being veiled by a faint wash of white.

*Type*.—Cat. No. 4824, U.S.N.M.

92. *SCHINIA OCULATA*, new species.

Head and collar yellowish, the latter with brown powderings. Disk of thorax white, with yellow mottlings. Primaries at base creamy, with ocherous mottlings. The broad median space silvery white, without band, but with a large kidney-shaped reniform, which is ocherous and emphasized with black scales. Subterminal and terminal spaces creamy, the subterminal a trifle more gray, at and below the apex a brownish patch. A series of small, brown, terminal lunules, becoming lost toward the hinder angle. Costa over the reniform, creamy. Secondaries with a yellowish tint, with a broad, smoky, outer margin. Beneath, primaries with the disk blackish, inner and costal margins yellowish, a yellowish subterminal line, and a large blackish discal spot. Secondaries white with a yellow tinge.

Expanse, 23 mm. = 0.92 inch.

*Habitat*.—Rio Verde Mountains, Phoenix, Arizona, August, Dr. Barnes.

One defective male and one good female. Differs obviously and at once from the other silvered species by the absence of a median band.

93. *SCHINIA CILIATA*, new species.

Head yellow in front. Vertex and thorax a mixture of creamy and rusty brown scales, vestiture somewhat loose. Primaries ocherous, mixed with deep rust brown at base. Then silvery white to a broad median band which is similarly ocherous and brown, outwardly a little bent on the cell, and separated by a narrow silver line from a broadly oval, brown reniform. Beyond this band and reniform spot the wing is again silvery to the powdery, rusty brown, broken, subterminal line, beyond which it is creamy white. There is a rusty brown spot on the margin below the apex, and a series of brown terminal marks extends halfway to the hind angle. Secondaries white, with a narrow, slightly dusky outer margin. Beneath, primaries blackish, except along inner margin and at apex. Secondaries white, with a blackish spot at the inner third of outer margin.

Expanse, 22 mm. = 1 inch.

*Habitat*.—Hot Springs, New Mexico, 7,000 feet altitude, August. Collection of George D. Hulst.

One female in excellent condition. This specimen has been in my hands nearly ten years awaiting a mate. As none has arrived, it may

be fairly considered as rather rare or at least local. It has a median band like *conchula*, but has also a separate reniform and evident subterminal line.

We have now four species referred to *Schinia* which are largely silvered on the primaries and would be classed as *Tricopis* if Grote's generic term could be used. These are *conchula* Felder and Rogenhofer (*chrysellus* Grote), *aleucis* Harvey, *oculata* Smith, and *ciliata* Smith. The two former are narrower winged and the primaries are more pointed than in the latter. In *conchula* there is no reniform and the median band is angulated so as to include the space that should be occupied by it. In *ciliata* there is a similar band, but outside of, and separated from it, is a large reniform. In *aleucis* the median band is upright, the reniform is entirely separated. the terminal and part of the subterminal spaces are dusky, and there is a triangular, silver, antepical spot on the costa. Finally, the reniform is very large and prominently contrasting. No effort has been made to ascertain what differences there may be in tibial armature. The fact that the term *chrysellus* Grote must yield to *conchula* Felder and Rogenhofer has been recently pointed out by Mr. Strecker.

#### TRIPUDIA LUDA Druce.

*Agrophila luda* DRUCE, Biol. Cent.-Amer., Heterocera, II, 1898, p. 491. pl. xciv, fig. 25.

Five specimens of this species are before me; two of them from Sonora, Mexico, 40 miles from the Arizona line; two marked "Ariz.," without other information, and one, taken by Mr. E. A. Schwarz, marked Tucson, Arizona, May 18, 1898. It seems probable that this will prove not uncommon on both sides of the border.

The original reference to *Agriphila* can hardly be sustained if Lederer's limitation of the genus is correct. The genera of this series need further study; but for the present I prefer to change the reference originally made by Mr. Druce to *Tripudia*, because the species seems congeneric with our species, and because I have two others which I prefer to describe under that head.

#### 94. TRIPUDIA BALTEATA, new species.

Head and thorax ashen gray, the disk and posterior tuft of scales a little darker. Abdomen with rather a prominent dark scale tuft on the third segment, yellowish at base. Primaries ash gray at base, followed by a broad, oblique, bright luteous band which extends to the middle of the wing. This is followed by ashen gray, with a brownish overlay to the paler gray fringes. The outer edge of the yellow band is margined by a black line which, on the cell, forms an outward loop to include the reniform shading and merges with the transverse posterior line. The latter is single, black, and below its merger with the line previously described is irregularly angulate. The subterminal space is shaded with brown, the subterminal line being indicated by pale, rather

pinkish shadings which are irregular and disconnected. The terminal space is gray, with a broken black line at the base of the gray and brown mottled fringes. Secondaries smoky brown, paler at base. Beneath pale reddish luteous, secondaries more whitish, both powdery and darker shaded along the costal margin.

Expanse, 14 to 15 mm. = 0.56 to 0.60 inch.

*Habitat*.—Santa Rita Mountains, Arizona, May 29 and June 16, Mr. E. A. Schwarz.

Two females in good condition. The species is very characteristic and should be recognizable. It resembles the *T. flavofasciata* of Grote.

*Type*.—Cat. No. 4780, U.S.N.M.

95. TRIPUDIA LUXURIOSA, new species.

Head and thorax silver gray, with darker, reddish brown scales intermixed, disk and posterior bunch of scales on thorax, brown; abdomen gray with yellow tinge. Primaries silver gray at base to the transverse anterior line, which is single, brown, broken and irregular, the basal line being traceable over the costal region by pinkish scales. From the transverse anterior line to the inner edge of the brown median shade the space is whitish, shaded with pink, basally. The median band is brown, edged with black scales, twice dentate on each side, the teeth being opposite, so that we have two constrictions and three expansions. Silvery scales edge this band outwardly and lighter scales extend to the deeply sinuate transverse posterior line, which is brown, incomplete, and single. Subterminal line silvery white or creamy, irregular, with two square insets, which are silvery, and three blocks of blackish scales above, between and below these insets. Apex brick red, rest of terminal space reddish brown. The long fringes are irregularly mottled and marbled with black, gray, and brown. Orbicular barely indicated by dusky scales before a constriction of the median band; the reniform better marked by an undefined dusky spot beyond it. Secondaries smoky brown, the fringes more gray. Beneath yellowish, mottled with black.

Expanse, 11 to 13 mm. = 0.44 to 0.52 inch.

*Habitat*.—Arizona; Santa Rita Mountains, Arizona, June 14, 1898 (E. A. Schwarz).

Two females; one of them, taken by Mr. Schwarz, very fresh, the other, an old example, a little faded and without definite locality. The description is from the fresh example, which is really very handsome and richly colored. This species should also extend into Mexico, but has not been recognized as described.

*Type*.—Cat. No. 4779, U.S.N.M.

THALPOCHARES DARIA Druce.

*T. alpocharis daria* DRUCE, Biol. Cent.-Amer., Heterocera, II, 1898, p. 497, pl. xcv, fig. 29.

This seems to be rather a common species in the southwestern United States. I have it from several points in Texas, from as many collectors;

from Hot Springs, New Mexico, 7,000 feet altitude (Hulst collection); Oracle, Arizona, July 7 (E. A. Schwarz), and some point in Southern California, from Dr. H. H. Behr. The type locality is Jalapa, Mexico. The specimens vary somewhat in the amount of contrast and in the ground color; but in general they are lighter or darker ashen gray, the reniform creamy or whitish, the light shade extending to the costa and forming a triangular contrasting blotch which will call attention to the species.

The generic reference is questionable if our own species of *Thalpochares* are correctly referred.

#### PARORA, new genus.

Head rather small, well applied to the head, though hardly retracted. Eyes naked, hemispherical, not prominent. Palpi long, obliquely projecting beyond the head by more than its own length; second joint longest and evenly thickened; third slender, cylindrical, rounded at the tip. Front only a little convex, with a short, pointed, hairy tuft. Tongue strong, normally developed. Thorax rather short, quadrate, only a little convex, with close scaly vestiture. All the tibiae unarmed, except for the usual spurs. Abdomen cylindric, smoothly scaled, a little exceeding the anal angle. Primaries broad, costa and inner margin arched, apex rectangular, the outer margin a trifle excavated below it and a little produced at the middle. Secondaries proportionate, vein 5 as strong as any other, but from the cross vein and well removed from 4, not really forming part of the median series.

The genus at first sight tends to the Erebiid or Poaphilid series, but the moderate discal cell and the location of vein 5 of the secondaries indicates its place to be a little higher in the series.

#### 96. PARORA TEXANA, new species.

Ground color a very pale luteous. Head and collar chocolate brown, thorax with a somewhat paler brown discal stripe, which may become partly lost. Primaries without strong contrasts, the most prominent mark being a smoky cloud which extends from the reniform to the transverse posterior line or a little beyond it. Transverse anterior line narrow, brown, upright or a little oblique, with three almost even sinuations. Median shade line a little broader, but more diffuse at the edges, darker, parallel with the transverse anterior line and a little within the middle of the wing. Transverse posterior line slender, blackish, followed by a paler shade, defined outwardly by a few dark scales, so that the line seems geminate. In course it is broadly outcurved over the cell, and only a little drawn in, in the submedian interspace. Subterminal line lunulate, slender, dark, preceded by a pale yellow line at the base of the fringes. Orbicular a small blackish dot. Reniform moderate in size, upright, a little constricted in the middle, yellow. Secondaries smoky with a reddish shading, a little paler at base. Beneath more yellow, practically immaculate.

Expanse, 26 to 27 mm.=1.48 to 1.52 inches.

*Habitat*.—Brownsville, Texas, June 11 (Townsend); San Diego, Texas, June 12 (Schwarz); Corpus Christi, Texas (Dr. Barnes).

Three females, two of them from the U. S. National Museum. None of the examples are perfect, but on all of them the characters are well recognizable. The markings are not well written and the only notable feature is the dark shading of the primaries just beyond the reniform, which in one example extends almost to the apex.

*Type*.—Cat. No. 4777, U.S.N.M.

97. SYNEDOIDA SUBTERMINA, new species.

Ground color pale luteous, varying to grayish. Head and thorax immaculate. Palpi with second joint black at base. Antenna with a rosy flush outwardly. Primaries with costa a little reddish, vestiture smooth and even. Basal line single, black, broken on the cell, contrasting. Transverse anterior line marked by a black or blackish costal spot, and beyond that reduced to scattered black powderings. Transverse anterior line geminate on the costa, smoky, traceable as a very narrow thread over the cell and then lost. Subterminal line distinct, broad, yellow, a little sinuate, marked by preceding black points and scales. A dusky oblique shade from vein 6 to the apex. A series of more or less obvious terminal dots on the veins. Orbicular wanting. Reniform blackish, upright, narrow, inner margin straight, outer a little incurved, forming the most prominent feature of the wing. Secondaries whitish at base, darkening to a blackish outer border, the fringes smoky. Beneath pale, reddish powdery, all wings with a discal spot.

Expanse, 35 to 37 mm.=1.40 to 1.48 inches.

*Habitat*.—San Diego County, California.

Two females in good condition, one of them with a grayish bloom over the luteous ground. The species somewhat resembles *Taniocampa* at first sight, and is most nearly allied to the *Taniocampa vegeta* of Morrison, which is the *Cissusa spadix* of Cramer. The obvious subterminal line, contrasting reniform, and otherwise lost maculation will serve to distinguish this species.

*Type*.—Cat. No. 4830, U.S.N.M.

ANTIBLEMMA Hübner.

Two species referred to this genus are in our lists: *inexacta* Walker=*canalis* Grote, which ranges from New York into the West Indies, and *guttula* Henry Edwards, so far only recorded from Georgia. The two species are similar, *guttula* having a very large bluish reniform which gives it at first glance a strikingly different appearance from *inexacta*; yet the resemblance in other directions is close. Among the specimens that I have been placing with *inexacta*, I find a series of four examples, male and female, which are uniformly smaller, much darker in ground



color, and with the primaries much less excavated below the apex. These I am unable to identify with any other described form and have named *minorata*. All are from Florida. Another specimen, from Arizona, is yet different, the ground color becoming bluish gray, while a darkening of the space between the median shade and the transverse posterior line forms a broad smoky band which crosses both wings; this I have called *fasciata*. The secondary sexual characters are the same in each instance so far as appears by a superficial examination.

98. ANTIBLEMMA MINORATA, new species.

Ground color a somewhat dull fawn brown, more or less black powdered. Head and collar chocolate brown or darker, thorax and abdomen concolorous. Primaries sometimes quite even, sometimes strongly powdered, the maculation variably evident. Transverse anterior line slender, blackish, inwardly oblique, outcurved in the interspaces, rarely complete. Transverse posterior line rusty yellow, preceded and sometimes followed by a blackish line or shade, with a long, acute angle between veins 6 and 7, inwardly oblique and a little incurved to the inner margin, one-third from the inner angle. Subterminal line a series of more or less diffuse, interspaceal spots in a bisinuate course; sometimes connected by a dusky shade which may fill the space between transverse posterior and subterminal lines to the angle in the former. The shade may then be continued from this angle to the apex, making an apparently straight line from apex to the hind margin. Median shade blackish, diffuse, a little irregular, angulated on the cell, more or less broken. Orbicular a small black dot, more or less completely margined by white scales. Reniform moderate in size, irregular, sometimes scarcely defined, sometimes black and contrasting. Secondaries with a median line which is a continuation of the transverse posterior line of the primaries. The median shade of primaries crosses the secondaries at basal third and is broken or obscure; in one case only an elongate spot near the inner margin. Subterminal line similar to that of primaries and as variable, but a little farther from the margin. Here also the subterminal space is sometimes dark filled, so as to form a broad band. There is a small, black, discal dot. Beneath paler, more irrorate and powdery, with a scalloped, irregular, outer line, a black dot representing the orbicular, and discal spots on both wings, and a white, linear spot representing the reniform on primaries.

Expanse, 28 to 29 mm. = 1.12 to 1.16 inches.

*Habitat*.—Florida, April and June 13 (Hulst); Glenwood, Florida (Barnes).

Two males and two females; none of them in good condition and no two alike. In one case the powdering is almost wanting and the reniform is contrasting. In another the maculation is almost all wanting; a third has the subterminal space on both wings dark filled, while the fourth has this shading broken into spots.

*Type*.—Cat. No. 4838, U.S.N.M.

## 99. ANTIBLEMMA FASCIATA, new species.

Ground color, mouse gray with a bluish tinge. Head and collar defective in the specimen before me, but apparently not red brown. Thorax and abdomen concolorous. Transverse anterior line red brown, slender, single, very evenly zigzagged, inwardly oblique. Transverse posterior line very narrowly yellow, margined on each side with chocolate brown for its entire course, which is as in *minorata*. Median shade broad, blackish, a little diffuse, as a whole parallel with the transverse posterior line, the intervening space between the two brown filled; lightly so on costa, densely so toward the inner margin. A brown shade extends from the angle of the transverse posterior line to the apex. Subterminal line an irregular series of interspaceal blackish marks, varying in size and shape, forming a dusky shading opposite the anal angle and another opposite the cell. Orbicular a blackish dot. Reniform obscured in the median shade band. Secondaries with the transverse posterior line of primaries continued across at the middle, the median shade crossing at one-third from base, the interval brown filled and with a central discal black dot. Subterminal line crossing as an irregular, dark, broken, diffuse shade, best marked just above the anal angle. Beneath, reddish gray, powdery, disk of primaries darker, more powdery, with a white discal spot on all wings.

Expanse, 29 mm.=1.16 inches.

*Habitat*.—Arizona; Hulst collection.

The type, belonging to the Rutgers College collection, is a male in rather poor condition, but so obviously distinct that description seems warranted.

## 100. BOMOLOCHA VEGA, new species.

Ground color smoky brown, powdery. Head and thorax unicolorous darker brown. Palpi oblique, a little curved in all my specimens. Abdomen pale, smoky. Primaries as a whole darker to the median shade, thence with a somewhat more luteous, paler shade; interrupted in some examples by a darker subterminal shade. Transverse anterior line upright, irregular, broad, diffuse, only a little darker, preceded by a paler shade. Transverse posterior line irregular, indistinct, smoky, outcurved over the cell, with a small inward sinuation below. Median shade somewhat irregularly sinuate, best marked by the difference in color between it and the paler following shade. Subterminal line very irregular, toothed, angulated and sinuate, black, broken, preceded by black scale shadings varying in extent, but never great. A series of pale, terminal, interspaceal somewhat lunate spots. Fringes with a pale interline, beyond which they are cut with light and darker shades. Orbicular small, round, dusky, not defined and hardly contrasting. Reniform is an undefined, pale oval, at the end of the cell. Secondaries even, smoky. Beneath, even, rather pale smoky, all wings with a discal spot.

Expanse, 30 to 33 mm.=1.20 to 1.32 inches.

*Habitat.*—Las Vegas, New Mexico (Bolter); Lower California (Barnes).

Four males in good or fair condition and much alike, save for the difference in the amount of contrast between the shadings. The species belongs to the series with complete median lines, but has no close allies in the described forms.

*Type.*—Cat. No. 4820, U.S.N.M.